

KNOWLEDGE+

FOR CLASS 8



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Knowledge+ for Class 8

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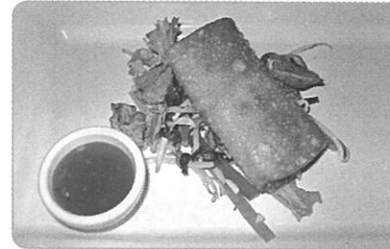
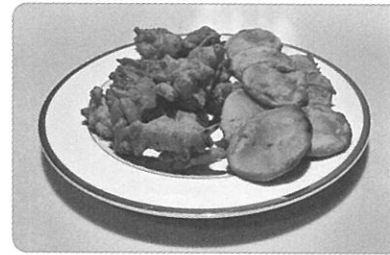
We also wish to thank all photographers and services whose photographs in the public domain have been used.

1. Starters

A starter is a food item, generally savoury, that is served before the main course of a formal meal. An appetiser is served and eaten before the start of a meal. The two terms are often used interchangeably. Starters may include salads, soups and fried items (fritters). Popular Indian starters are kebabs, tikkas and pakoras. Many dishes are eaten as appetisers in foreign countries but not in their country of origin.

Tick the correct option or options.

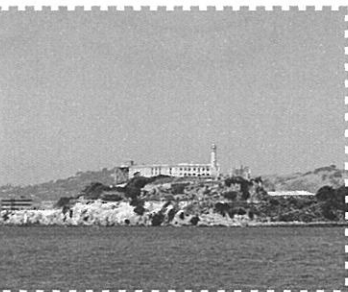
1. Fritter made with different vegetables such as onions and potatoes; served as a starter with dips [pakora / medu vada / chakodi / chakli]
2. An Indian starter; made from small pieces of spiced meat, vegetables or paneer grilled in a tandoor [poornalu / tandoori / murukku / tikka]
3. A popular Middle Eastern dip that is made from chickpeas and served with starters such as pita bread [labneh / baba ganoush / hummus / mezze]
4. A salad made from pulses; it is a part of the traditional Udupi meals eaten in Karnataka. [kosambari / koddalu / bonda / happala]
5. Antipasto means before the meal. It is the name given to starters in this country's cuisine. [Greece / Armenia / Italy / Spain]
6. Salads may be eaten as starters. Coleslaw is a salad often used in sandwiches. Its main component is [cabbage / lettuce / cucumber / tomato].
7. An appetiser made by adding toppings on a base of bread or cracker; its name came from the French word for couch. [quiche / canape / tourte / fondue]
8. A traditional Hyderabadi starter; it is a flat pastry with a filling. Its name comes from an Urdu word for a morsel. [lukhmi / khagina / anarsa / bhoonja]
9. Crunchy appetisers such as cutlets; made by coating the filling with breadcrumbs and frying [canapes / crumpets / croquettes / crudites]
10. Soups are popular starters. Pick a soup that is clear and has a rich flavour. [consomme / bisque / chowder / potage]
11. Healthy appetisers that consist of sliced sticks and small pieces of raw or barely cooked vegetables [crostini / crudites / canapes / croquettes]
12. Sauces for salads are called dressings. Pick the popular salad dressings. [vinaigrette / thousand island / ranch / Caesar]



2. Famous Addresses

Many addresses are famous because of the people who live there or the buildings and monuments found there. Fill in the blanks.

1. The Rashtrapati Bhawan on _____, New Delhi, is the official residence of the President of India.
2. 12 Grimmauld Place was the headquarters of the Order of the Phoenix in the Harry Potter books. The house belonged to _____.
3. This building on 1600 Pennsylvania Avenue has also been called President's Palace, President's House and Executive Mansion in the past. It is now known as the _____.
4. This site in Washington, DC, was known as Jenkins' Hill. It now has many important buildings, including the one where the Senate and the House of Representatives meet, and is known as _____.
5. Leaders like Winston Churchill and Margaret Thatcher are former residents of _____. This home also has a cat who serves as the Chief Mouser to the Cabinet Office.
6. Bennelong Point in Australia is the address of the famous _____.
7. At D Road, Churchgate, Mumbai, you will find the _____.
8. Named Island of the Pelicans by a Spanish explorer, it served as a maximum-security prison. The gangster Al Capone was imprisoned on this American island called _____.
9. 11 Wall Street is home to the _____.
Its Indian equivalent in Mumbai is situated in _____.
10. Stratford-upon-Avon is a small historic town in England and the birthplace of _____.
11. The _____ in Los Angeles is a famous road that stretches from the heart of the city to the Pacific coast.



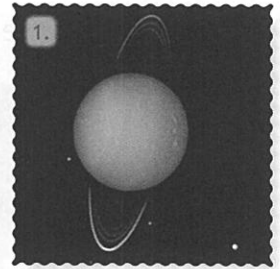
The Sherlock Holmes Museum is at 221B Baker Street, London, which is his address in the novels.

Capitol Hill Alcatraz 10 Downing Street Albus Dumbledore White House Rodeo Drive Isaac Newton
Raisina Hill Observatory Senate Height Sirius Black Dalal Street Wankhede Stadium St Thomas Church
New York Stock Exchange William Shakespeare 7 Race Course Road Sydney Opera House Sunset Boulevard

3. First and Last

Tick the correct option.

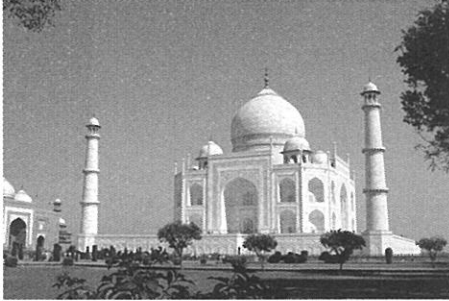
- The ancient astronomers knew many of the planets of our solar system. The first planet that was discovered using a telescope was
a. Neptune b. Uranus c. Mars d. Jupiter
- When Martha died at Cincinnati Zoo in 1914, her species became extinct. She was the last _____ pigeon.
a. rock b. hill c. snow d. passenger
- Yuvraj Singh was the first Indian batsman to hit six sixes in an over in an international match. The first person in the world to do this was
a. Gary Sobers b. Vivian Richards c. Herschelle Gibbs d. Don Bradman
- Sleeping Murder was not the last novel she wrote but it was her last published novel, as she wanted it to be released after her death. The author was
a. Jane Austen b. Agatha Christie c. Magdalen Nabb d. Nedra Tyre
- Charlie Chaplin was perhaps the biggest star of the era of silent movies. His famous character the Little Tramp made his last appearance in the movie
a. City Lights b. Modern Times c. Recreation d. The Tramp
- Durba Banerjee was Indian Airlines' first female pilot. The first Indian woman to obtain a commercial pilot's license was
a. Harita Dayal b. Prem Mathur c. Sarla Thakral d. Mohini Shroff
- This famous young diarist made the last entry in her diary on 1 August 1944, three days before she and her family were arrested by German forces. She was
a. Anne Frank b. Eliza Fay c. Fanny Burney d. Ann Hingis
- The world's first supersonic (faster than sound) commercial passenger plane flew with passengers for the last time on 24 October 2003. It was the
a. Concorde b. Valkyrie c. Convair d. Beluga
- After 163 years of existence in India, this system of communication was discontinued. The last _____ was sent in July 2013.
a. semaphore b. telex c. telegram d. postcard
- Nicholas II was executed by the Bolsheviks in 1918. He was the last emperor of
a. Russia b. England c. France d. Belgium
- The world's first commercial microprocessor was made by
a. Fujitsu b. Intel c. IBM d. AMD



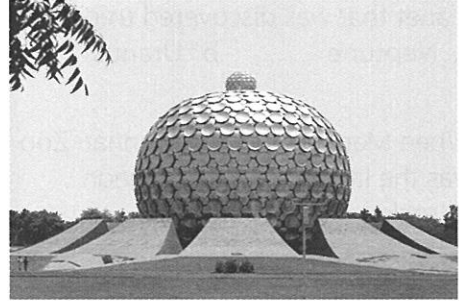
4. Spot the Errors

Spot and write the errors.

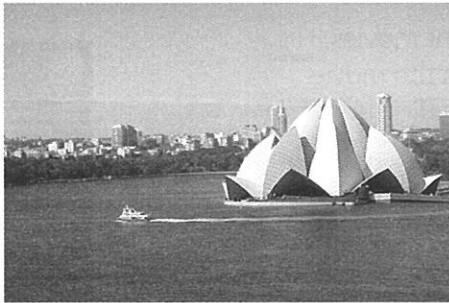
1.



2.



3.



4.



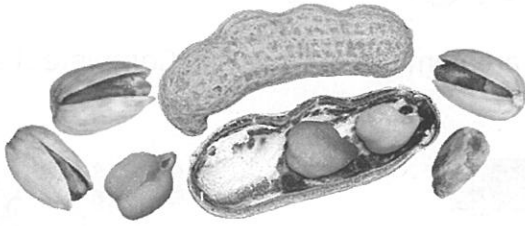
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7.



8.



9.



10.



11.



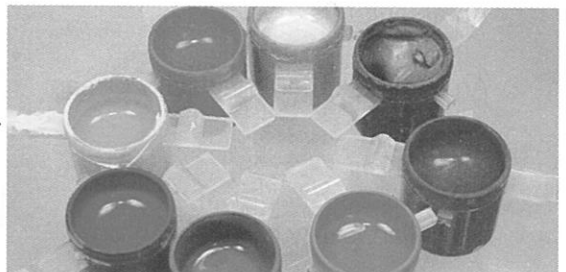
12.



13.



14.



5. Named After ...

1. Many countries, towns, laws, companies, devices, etc., are named after people. Complete the table below using the list at the bottom of the page.

	Name	Named After
a.	Colombia	
b.		St Francis of Assisi
c.	Casio	
d.		Maharaja Sawai Jai Singh II
e.	Hawk-Eye system	
f.	Snell's law of refraction	
g.		Romulus
h.	Saudi Arabia	
i.		Sam Walton
j.	Bose speakers	



Sideburns are named after Ambrose Burnside, a Union Army general in the American Civil War.



Poinsettia gets its name from Joel Roberts Poinsett, who brought the plant from Mexico to the USA.

2. Read the clue and write the name of the place or thing, and the person it is named after. Choose from the list at the bottom of the page.

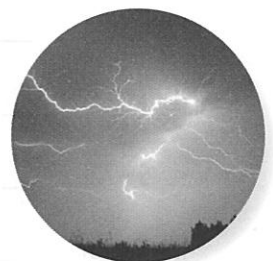
- A coat named after a leader _____
- A particle named after an Indian scientist _____
- An assault rifle _____
- An archipelago in the Pacific Ocean _____
- A month _____
- An Italian luxury car brand _____

Jaisalmer Charles-Augustin de Coulomb Stephen Hawking Jagadish Chandra Bose Tadao Kashio France King Salman Saud
 Christopher Columbus Mikhail Kalashnikov Paul Hawkins Amar Bose Alfa Romeo Willebrordus Snellius Jaipur M K Safari
 Muhammad bin Saud AK-47 Nehru jacket Walmart San Francisco Philippines Gerard Philips Safari suit Julius Caesar
 May Nicola Romeo Satyendra Nath Bose Rome Jaguar boson King Philip II of Spain Jawaharlal Nehru July Mae West

6. Fear Words

Fill in with the correct option.

1. A phobia is an irrational fear. The fear of heights is _____.
[vertigo acrophobia agoraphobia ambulophobia]
2. Bibliophobia is the fear of _____.
[Biblical characters speaking Christians books]
3. Zoophobia is the fear of _____.
[going to the zoo animals animal skins zoologists]
4. The fear of spiders is found in many people. A movie was made on this.
Both the movie and the fear are called _____.
[arthrophobia arachnophobia archophobia octophobia]
5. Gerascophobia is the fear of growing old. The fictional character most likely to suffer from it is _____.
[Peter Pan Sam-I-am Charlie Bucket Matilda]
6. The fear of large open spaces from which it is difficult to escape is agoraphobia.
The fear of being in small places is _____.
[halophobia spaceophobia claustrophobia amphiphobia]
7. Many people fear that gravity will either crush them or leave them floating.
This strange fear is called _____.
[barophobia bathophobia dendrophobia algophobia]
8. Sesquipedalophobia is a real fear seen in many people. The humorous name given to it is hippopotomonstrosesquippedaliophobia. It is the fear of _____.
[long legs long words hippopotamuses hippies]
9. Trypanophobia is seen in many people who refuse to see a doctor or go for medical check-ups. It is the fear of _____.
[injections hospitals falling ill nurses]
10. Some children, and even adults, suffer from coulrophobia. This is the fear of _____.
[colours clowns cats contagious diseases]
11. The extreme fear of thunder and lightning is called _____.
[somnophobia heliophobia anthophobia astraphobia]
12. Napoleon, Julius Caesar and Alexander were great leaders. All of them are believed to have suffered from ailurophobia—the fear of _____.
[battles thunder making speeches cats]



7. Quiz 1

1. What are these / who are they?

- | | | |
|--|-------|----------------------|
| a. basil, coriander, thyme, parsley, dill | ..... | appetisers |
| b. femur, tibia, scapula, patella, stapes | ..... | insects |
| c. Dasher, Dancer, Prancer, Vixen, Comet | ..... | types of cheese |
| d. fusilli, vermicelli, macaroni, rotini, penne | ..... | coffee beans |
| e. haddock, plaice, pilchard, anchovy, pomfret | ..... | herbs |
| f. Beaufort, cheddar, feta, mozzarella, queso | ..... | vegetables |
| g. tangerine, kumquat, longan, shaddock, langsat | ..... | famous horses |
| h. moccasins, galoshes, loafers, brogues, espadrilles | ..... | ballet characters |
| i. pommel horse, vault, balance beam, parallel bars | ..... | jackets |
| j. Chetak, Boxer, Black Beauty, Bucephalus, Merrylegs | ..... | muscles |
| k. mocha, espresso, café au lait, flat white, cappuccino | ..... | Santa's reindeer |
| | | fruit |
| | | pizza varieties |
| | | types of pasta |
| | | footwear |
| | | coffee drinks |
| | | types of bread |
| | | fish |
| | | bones |
| | | gymnastics apparatus |

2. Complete these.

- a. GIF _____ Interchange _____
- b. DCIM _____ Images
- c. USB _____
- d. ASEAN _____ of _____
- e. SWAT _____ Tactics
- f. Maser _____ by Stimulated _____ of Radiation
- g. AWACS Airborne _____
- h. Hudco _____ and _____ Ltd.
- i. Nabard _____ for Agriculture and _____
- j. CAPTCHA _____ Public Turing test to tell _____ and Humans _____



DCIM

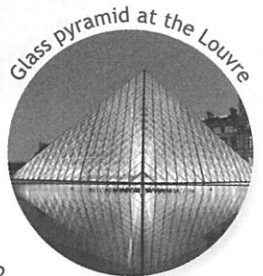


3. Tick the correct option or options.

Budapest



1. Aspirin is a drug used to relieve pain, fever, etc. Its natural source is the _____ tree.
a. neem b. oak c. willow d. lemon
2. The river _____ divides Hungary's capital Budapest into two parts: Buda and Pest.
a. Danube b. Ural c. Volga d. Rhine
3. Which of these are Japanese cities as well as famous brands?
a. Suzuki b. Hitachi c. Kawasaki d. Yamaha
4. Which of these are museums or have museums?
a. INS Kursura b. Louvre c. Raj Bhawan d. Smithsonian Institution
5. Which of these leaders were assassinated?
a. Indira Gandhi b. Benazir Bhutto c. John F Kennedy d. Mujibur Rahman
6. At which Olympics did Nadia Comaneci become the first gymnast ever to score a perfect ten?
a. Beijing, 2008 b. Sydney, 2000 c. Moscow, 1980 d. Montreal, 1976
7. Among these, which is the oldest public zoo?
a. Thrissur Zoo b. Hyderabad Zoo c. Alipore Zoo d. Lucknow Zoo
8. In the 1982 film Gandhi, Ben Kingsley played M K Gandhi. Who played Jawaharlal Nehru?
a. Tom Alter b. Roshan Seth c. Saeed Jaffrey d. Alyque Padamsee
9. Most of the moons of this planet are named after characters from Shakespeare's plays.
a. Saturn b. Jupiter c. Uranus d. Neptune
10. Among these prizes for mathematics, which is often called the mathematician's Nobel Prize?
a. Chern Medal b. Fields Medal c. Nevanlinna Prize d. Morgan Prize



Fields Medal



11. Which of these bridges is in Sydney and is nicknamed The Coathanger?

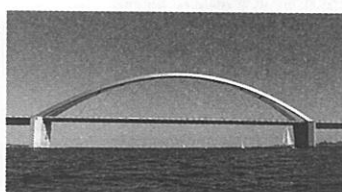
a.



b.



c.



12. Which of these shows marigold leaves?

a.



b.



c.



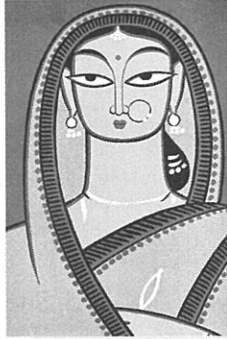
8. Painting and Sculpture

1. Whose work is it? Write the name of the artist.

a.



b.



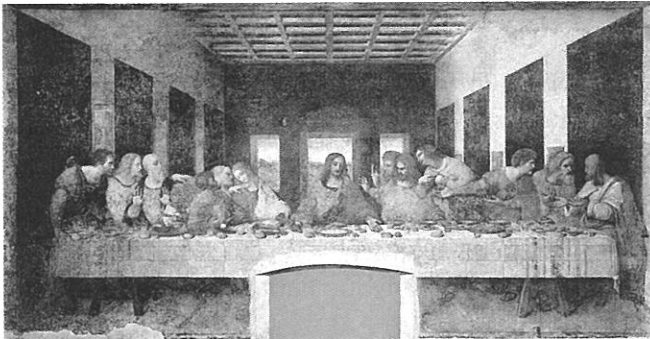
c.



d.



e.



f.



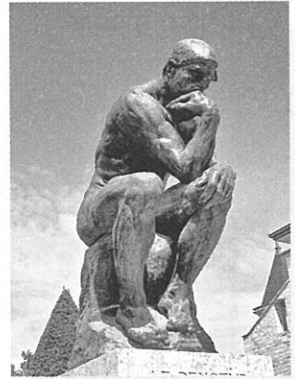
g.



h.



i.



Raja Ravi Varma

Michelangelo
Amrita Sher-Gil

Rembrandt
Claude Monet

Leonardo da Vinci
Vincent van Gogh

Pablo Picasso
Jamini Roy

Auguste Rodin

2. Tick the correct option or options.

1. A mural is a large painting done on a wall or ceiling. A special type of mural made on fresh, wet lime plaster is called
a. fresco b. baroque c. tempera d. fresco-secco
2. Ragamala paintings depict different ragas of Indian music. Where did this style originate?
a. Agra b. Rajasthan c. Kashmir d. Mysore
3. Which Italian sculptor, architect and painter is credited with the paintings on the ceiling of the Sistine Chapel in Vatican City?
a. Donatello b. Bernini c. Michelangelo d. Auguste Rodin
4. A master of his art, Muhammad Husain was given the title Zarin Qalam (Golden Pen) by Akbar. He was a
a. calligrapher b. poet c. painter d. scribe
5. Sudarsan Pattnaik is an artist who has represented India at many competitions and exhibitions. He is famous for his
a. oil paintings b. frescoes c. miniatures d. sand sculptures
6. Pick the correct style–region pairs for these Indian painting styles.
a. Kangra–Himachal Pradesh b. Bundi–Rajasthan
c. Tanjore–Tamil Nadu d. Kalighat–West Bengal
7. A famous Spanish painter and sculptor; he pioneered the painting style called cubism, which depicts fragmented forms through the wide use of geometric shapes. His name:
a. Pablo Picasso b. Claude Monet c. Henri Matisse d. Salvador Dali
8. Many of Ramkinkar Baij's sculptures adorn the grounds of Kala Bhawan in Shantiniketan. One of them shows a tribal family and is called the
a. Gond Family b. Garo Family c. Bhil Family d. Santhal Family
9. The Mughal ruler Jahangir commissioned many paintings of animals and plants. Which painter from his court was famous for such paintings?
a. Basawan b. Daswant c. Govardhan d. Ustad Mansur
10. This artist made paintings for the freedom struggle and along with his students illustrated the original manuscript of the Indian constitution.
a. Jamini Roy b. Ravi Varma c. Nandalal Bose d. M F Husain
11. Where would you find this primitive cave painting of a bison?
a. Altamira, Spain b. Chauvet Caves, France
c. Lascaux, France d. Bhimbetka, India



A painting from the Madonna series by Renaissance painter Raphael



A painting by Ustad Mansur



A ragamala painting



Anish Kapoor's installation Sky Mirror in Nottingham



9. World of Sports

1. Tick the correct option or options.

1. Which of the following sports have featured in all the modern Summer Olympics held so far?

- a. fencing b. cycling c. wrestling d. gymnastics

2. The sport of netball resembles

- a. football b. hockey c. volleyball d. basketball

3. Trampoline is an Olympic event in which the participants are

- a. runners b. gymnasts c. riders d. rowers

4. Which of the following are equestrian sports?

- a. dressage b. eventing c. vaulting d. show jumping

5. In lawn tennis, the four Grand Slam tournaments are Wimbledon, the French Open, the US Open and the Australian Open. Who among the following Indians have won titles in one or more of these?

- a. Vijay Amritraj b. Leander Paes c. Mahesh Bhupathi d. Sania Mirza

6. In which Grand Slam tournaments are there no tiebreakers in the final set?

- a. Wimbledon b. French Open c. US Open d. Australian Open

7. A tennis player completes a Grand Slam by winning all the four Grand Slam tournaments in a single calendar year. A gold medal at the Summer Olympics in the same year added to that makes a Golden Slam. This was first achieved by

- a. Jimmy Connors b. Boris Becker c. Steffi Graf d. Martina Hingis

8. Which is India's oldest football tournament? It is also one of the oldest in the world.

- a. IFA Shield b. Rovers Cup c. Durand Cup d. Federation Cup

9. Shiva Keshavan has been representing India at the Winter Olympics since 1998, when he first qualified as a sixteen-year-old. What is his event?

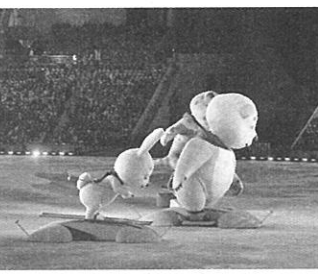
- a. luge b. snowboarding c. alpine skiing d. cross-country

10. The name of this sport means 'gymnast's pole'. This ancient Indian sport was revived in the early 19th century by Balambhatta Dada Deodhar, a physical instructor in the court of the Peshwas of Maharashtra. Name the sport.

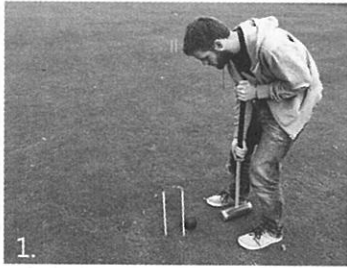
- a. kabaddi b. mallakhamb c. sagol kangjei d. kalaripayattu

11. A Test series in 1932–33 became infamous as the Bodyline series. In it, one team bowled at the body of the batsman, in line with the leg stump, so that fended balls would often become easy catches for the ring of fielders placed on the leg side. This caused fielding restrictions to be introduced. Pick the two teams.

- a. India b. England c. Australia d. West Indies



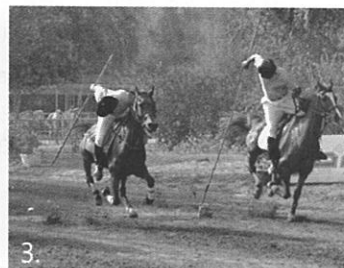
2. What is the sport? Tick the correct option.



- a. Golf
- b. Curling
- c. Croquet
- d. Lawn bowls



- a. Matkot
- b. Hurling
- c. Lacrosse
- d. Racquetball



- a. Polo
- b. Eventing
- c. Dressage
- d. Tent pegging



- a. Bandy
- b. Curling
- c. Ice hockey
- d. Indoor hockey

3. Write the name of the cup or trophy next to the competition for which it is given.

- a. A football tournament contested by Indian states and government institutions

- b. A domestic 50-over cricket competition contested by the five zonal teams of India

- c. The oldest field hockey tournament in India and one of the oldest in the world; running since 1895

- d. Men's golf contested by teams from Europe and the USA; the women's equivalent is the Solheim Cup.

- e. A boat race held in August every year near Alappuzha in Kerala; contested by local teams

- f. A knockout competition among English football clubs; the world's oldest soccer competition

- g. A football competition contested by clubs from South American countries

- h. A polo competition contested by teams from India and abroad

- i. World Table Tennis Championships; the winning men's team get the Swaythling Cup; the women's team trophy is the

- j. Match racing between two sailing yachts; the trophy, named after the first yacht to win it, is the oldest international sporting trophy.



Nehru Trophy Santosh Trophy Beighton Cup Ryder Cup FA Cup Deodhar Trophy
Ezra Cup Corbillon Cup America's Cup Copa Libertadores de America

4. The Indian Men's Field Hockey Quiz. Fill in the blanks.

- a. The first Indian field hockey club was set up in _____ around 1885. [Mumbai Kolkata Delhi Amritsar]
- b. Dhyan Chand, the Wizard, led India in the _____ Summer Olympics, which were his third and last. [1928 1932 1936 1948]
- c. Among these hockey greats, _____ has led India to an Olympic gold. [Balbir Singh Sr Leslie Claudius Dhanraj Pillay]
- d. After six Olympic golds, India's unbroken run was ended by _____ at Rome in 1960. India won again in 1964. [Germany the Netherlands Australia Pakistan]
- e. In the 1932 Olympics, India routed _____ 24–1. This is so far the biggest margin in an Olympic match. Dhyan Chand's brother Roop Singh scored 10 goals. [Japan the USA Pakistan Australia]
- f. The Indian side that won the _____ in 1975 had Dhyan Chand's son Ashok Kumar as one of its members. [Olympics World Cup Commonwealth Games Champions Trophy]



5. Fill in the names of these great Olympians.

[Wilma Rudolph Fanny Blankers-Koen Birgit Fischer Paavo Nurmi Leander Paes Aladar Gerevich Ramon Fonst Sania Mirza]

- a. First Indian and first tennis player to compete in six consecutive Olympics (1992 onwards)
- b. Distance runner; one of the famous 'Flying Finns'; ran in the 1920, 1924 and 1928 Olympics, winning a total of nine golds and three silvers
- c. Dutch athlete; first woman to win four gold medals in the same Olympics; 30 years old and a mother of two children when she achieved this at London in 1948
- d. US athlete; suffered from polio in childhood and had to wear a leg brace; won a bronze medal in the 1956 Olympics and three golds in the 1960 Games at Rome
- e. Cuban fencer; first Olympic medal winner from Latin America; won a gold and a silver in 1900 at Paris and two golds at St Louis in 1904
- f. Hungarian fencer; won seven golds, a silver and two bronzes over six Olympics; father-in-law Albert Bogen, wife Erna Bogen and son Pal also Olympic medallists
- g. German kayaker; won eight gold and four silver medals over six different Olympics

10. Western Classical Music

Western classical music developed in Europe during the 18th and 19th centuries. Chamber music, operas, symphonies and concertos are some forms that come under this kind of music. Western classical music is primarily homophonic (different vocalists sing or instrumentalists play in the same melody). Ludwig van Beethoven, Wolfgang Amadeus Mozart and Joseph Haydn are some of the greatest composers of Western classical music.

1. Tick the correct option or options.

1. An opera is a dramatic work performed entirely to music. Woodwind, brass, string and percussion instruments are used in an opera. Operas may have female singers who sing in a high-pitched voice. They are called
a. tenors b. baritones c. sopranos d. librettos
2. The orchestra got its name from the area where instrumentalists performed in ancient Greek theatres. The terms philharmonic and symphony refer to large orchestras. Which is an orchestra that performs in smaller spaces?
a. band b. choir c. minutiae d. chamber
3. A conductor indicates the correct tempo to the performers by using a baton or hand gestures and ensures that the whole ensemble performs in unison. Pick the famous conductors.
a. Igor Stravinsky b. Claudio Abbado c. Zubin Mehta d. Simon Rattle
4. A symphony is a long and complex piece of music meant to be played by a large orchestra. Who among the following have composed such pieces?
a. Ludwig van Beethoven b. Wolfgang Amadeus Mozart
c. Joseph Haydn d. Gustav Mahler
5. This member of the Beatles composed classical music later in his career. His classical music albums include *Standing Stone* and *Ecce Cor Meum*. He is
a. John Lennon b. Paul McCartney c. George Harrison d. Ringo Starr
6. Some musical compositions are meant primarily for singers, while some others are meant primarily for instrumentalists. Pick the types meant for instruments.
a. chorale b. sonata c. cantata d. concerto
7. Pick the great pianists among the following musicians.
a. Frederic Chopin b. Krystian Zimerman
c. Grigory Sokolov d. Hilary Hahn



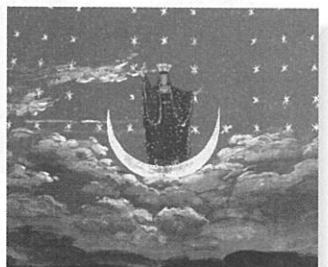
A conductor leading an orchestra



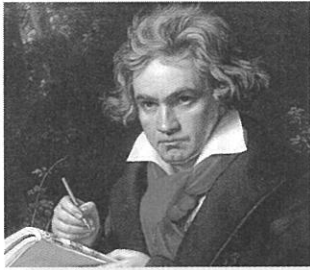
A string quartet has musicians on two violins, a cello and a viola.



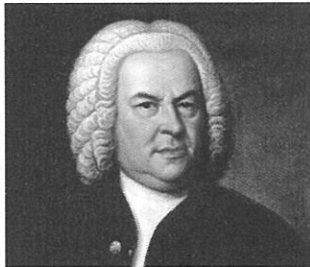
Zubin Mehta



A scene from Mozart's opera *The Magic Flute*



Ludwig van Beethoven



Johann Sebastian Bach



Wolfgang Amadeus Mozart



Joseph Haydn



Frederic Chopin

8. Beethoven was one of the greatest composers of all time. His music is still used in movies and television shows. His Ninth Symphony has been used in
- a. Dead Poets Society
 - b. A Clockwork Orange
 - c. Cruel Intentions
 - d. Die Hard

9. Counted among the best violinists, this American is a multiple Grammy winner and has played for the New York Philharmonic Orchestra. She is
- a. Carla Bley
 - b. Regina Carter
 - c. Emily Remler
 - d. Hilary Hahn

2. Fill in the name of the musician.

- a. A German composer and pianist; he became almost completely deaf towards the end of his life. His famous works apart from nine symphonies include the Moonlight Sonata and his only opera, Fidelio.

- b. An Austrian composer; his work includes almost all forms of music practised in his time. The operas The Magic Flute and The Marriage of Figaro were composed by him.

- c. A German composer; he was an accomplished harpsichordist and organist. He composed the Brandenburg Concertos.

- d. This Polish composer wrote most of his works for the piano. His famous pieces include the Farewell Waltz and the Minute Waltz.

- e. An Austrian composer; he perfected the symphony and the string quartet. The Emperor Quartet composed by him is used for the German national anthem.

- f. An Indian-born orchestral conductor, he has led the New York Philharmonic Orchestra. The Israel Philharmonic Orchestra named him their music director for life.

- g. This American-born Greek soprano was one of the greatest opera performers. Her performances in operas as Tosca and Norma are famous.

Ludwig van Beethoven Frederic Chopin Zubin Mehta Luigi Nono Joseph Haydn Maria Callas
Wolfgang Amadeus Mozart Johann Sebastian Bach Mehli Mehta Joan Sutherland

11. Cinema

From the magic lanterns of the 17th century to IMAX theatres and 4D movies, cinema has evolved while entertaining people over the years. Here are some important milestones.

1600s An early ancestor of the motion-picture projector, the magic lantern, a box with illuminated hand-painted glass slides, is popular for entertainment and education.

1888 George Eastman introduces a small box camera called Kodak.

1891 Thomas Edison and W K L Dickson develop the first motion-picture camera (Kinetograph) and a peephole viewing box (Kinetoscope).

1895 The Lumière brothers, Louis and Auguste, demonstrate the Cinématographe, a device that combines a camera and projector.

1895 Thomas Edison introduces the Kinetophone, enabling films with sound (talkies).

1903 Edwin Porter makes *The Great Train Robbery* noted for its camerawork and editing.

1916 Technicolor, a colour motion-picture process, invented; it is improved over the decades, and colour gains mainstream acceptance in the 1930s.

1927 *The Jazz Singer*, with synchronized dialogue and singing, signals the era of talkies.

1931 India's first full-length talkie *Alam Ara* (by Ardeshir Irani) is released.

1935 *Becky Sharp* is the first full-length feature film produced in Technicolor.

1937 Disney's *Snow White and the Seven Dwarfs* is the first full-length animation film.

1950s Eastmancolor by Eastman Kodak replaces the cumbersome Technicolor; CinemaScope enables panoramic pictures to be shown on wide, slightly curved screens, greatly enhancing the viewing experience; there is a flood of 3D movies but the genre does not gain wide acceptance.

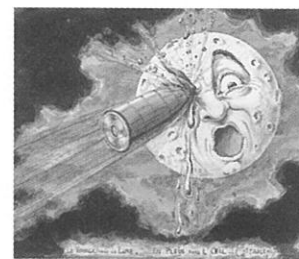
1960-70s Introduction of Dolby Laboratories' noise-reduction technology and its evolution, including surround sound; development of the IMAX over-sized film format, which can record and project images of far greater size than traditional film systems

1990s Rise of computer-generated imagery (CGI); *Toy Story* is the first CGI feature-length animation film; *Terminator 2*, *Jurassic Park*, *Titanic* and others made with help of CGI

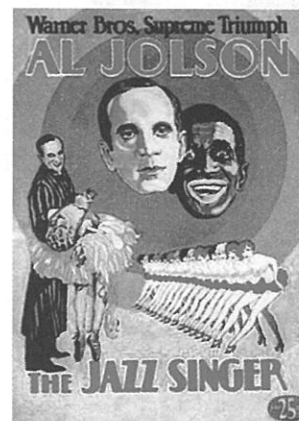
2000s Advent of digital cinema with *Star Wars Episode II: Attack of the Clones* (2002), the first big-budget live-action movie shot entirely on digital video; revival of interest in 3D films; *Avatar* (2009) is the first full-length 3D IMAX feature film; 4D movies incorporate actual physical effects, like drops of water for rain, special smells and blowing winds!



A magic lantern



Georges Méliès used 'special effects' in the 1902 movie *A Trip to the Moon*.



Early cinemas were called nickelodeons, as they charged a nickel (5 cents) for entry.





Vivien Leigh as
Scarlett O'Hara



Alfred Hitchcock's Psycho
terrified audiences in 1960.



Charlie Chaplin's films like
The Gold Rush and The Great
Dictator are all-time classics.



Orson Welles made Citizen
Kane at the age of 25.

1. Fill in the blanks. Use the words given below.

Bhanu Athaiya Casablanca Sholay Dilwale Dulhania Le Jayenge
Adoor Gopalakrishnan A R Rahman Gone with the Wind Satyajit Ray Deewar

- The longest-running Indian movie is the 1995 film _____, which crossed 1,000 weeks at Mumbai's Maratha Mandir theatre in December 2014.
- The first Indian to win an Academy Award was _____ for the Best Costume Design in Richard Attenborough's Gandhi (1982).
- The story of two criminals, Veeru and Jai, who are hired by a retired police officer to capture a dacoit, the movie _____ is considered one of the best Indian films for its action sequences, cinematography and performances.
- One of the greatest filmmakers of the 20th century, _____ is the only Indian to receive an Academy Award for Lifetime Achievement.
- Starring Vivien Leigh and Clark Gable, _____ was an epic film set in the backdrop of the American Civil War.

2. Pick the correct option or options.

- Name the British actor and filmmaker who became an icon of the silent-film era through his on-screen character The Tramp.
 - Buster Keaton
 - Walt Disney
 - Gene Kelly
 - Charlie Chaplin
- With an innovative cinematography and narrative structure that continue to influence filmmakers today, this 1941 film by Orson Welles is considered by many to be the greatest film ever made. Name this film.
 - Citizen Kane
 - Ben-Hur
 - Intolerance
 - Bicycle Thieves
- Alfred Hitchcock is known as the master of suspense for his movies with thrilling plots, murder, suspense and crime. Which of these are Hitchcock movies?
 - King Kong
 - The Exorcist
 - Psycho
 - Vertigo
- Which of these are films by Japanese director Akira Kurosawa, considered one of the most influential filmmakers in the history of cinema?
 - Rashomon
 - Ikiru
 - Seven Samurai
 - Hiroshima mon amour
- With a screenplay co-written by Arthur C Clarke, this 1968 classic sci-fi film features elements of human evolution, artificial intelligence and a voyage to Jupiter tracing extraterrestrial life. Name this epic movie.
 - Star Wars
 - E.T.
 - Blade Runner
 - 2001: A Space Odyssey
- Vito Corleone in The Godfather is considered among the greatest film characters of all time. In the films by Francis Ford Coppola, he has been portrayed by
 - Marlon Brando
 - Brad Pitt
 - Al Pacino
 - Robert de Niro

12. Celebrating the Arts

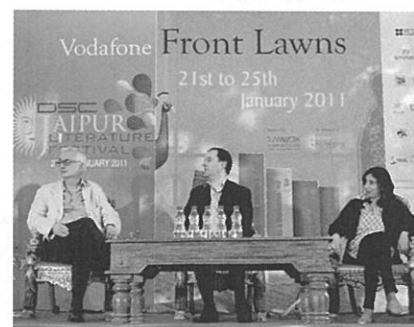
Hundreds of festivals are held around the world to showcase the best in the arts, music, film, theatre and literature. While highlighting the work of reputed artists, festivals offer new talent a chance to showcase their work. Fans and followers are able to see the work of artists from other parts of the world, some of which they would not see anywhere else.

1. Tick the correct option or options.

- Which of these prestigious film festivals is symbolised by the Palme d'Or (Golden Palm), awarded every year to the director of the Best Feature Film?
a. Cannes b. Venice c. Montreal d. Berlin
- The Berlin International Film Festival, or Berlinale, is one of the world's leading film festivals. The highest prize awarded at this festival is the Golden
a. Eagle b. Buddha c. Bear d. Oak
- Satyajit Ray won the Golden Lion (Leone d'Oro), awarded to the Best Film, at the Venice Film Festival for his film *Aparajito* in 1957. In 2001, an Indian director became the first woman to win this prize. She was
a. Aparna Sen b. Mira Nair c. Deepa Mehta d. Gauri Shinde
- This electronic dance music festival held in Goa is famous around the world for its music, entertainment and food. It is called the
a. Sunburn b. Sundance c. Rockfest d. Summerfest
- Literary festivals are popular due to the presence of well-known authors, book readings, panel discussions, workshops and book launches. Which of these cities play host to literary festivals?
a. Mumbai b. Kochi c. Jaipur d. Bengaluru
- The village of _____ in Punjab hosts the annual Rural Olympics, along with a cultural feast featuring folk music, bhangra and giddha.
a. Akhara b. Baghana c. Jangpur d. Kila Raipur
- Called one of the biggest shows on earth, the street carnival of this city is the largest in the world, attracting about two million people each day.
a. London b. Miami c. Panaji d. Rio de Janeiro
- Which of these is the world's largest annual funfair, held in Munich, Germany, attracting millions of people from around the world?
a. Oktoberfest b. Funfest c. Volksfest d. Woodstock



The Golden Lion



Jaipur Literature Festival



International Film Festival of India

The Berlin International Film Festival





The Hornbill Festival



The Carnival at Rio



A singer at the Mawazine

Exit, considered one of the best festivals in the world



2. Pick the correct option.

- a. The _____ Film Festival, founded in 1932, is the world's oldest film festival.
[Venice / Cannes / Montreal]
- b. The only Indian to win the Golden Palm at Cannes (then known as Grand Prix of the International Film Festival) was _____, for his film Neecha Nagar in 1946.
[Mehboob Khan / Guru Dutt / Chetan Anand]
- c. The International Film Festival of India was the first international film festival in Asia. Held in Goa every year since 2004, the festival gives the Golden _____ Award to the director of the Best Film.
[Elephant / Peacock / Nataraja]
- d. The Festival of Festivals, or the _____ Festival, showcases the music, dances, food, crafts, sports and customs of Nagaland.
[Thornbird / Hornbill / Hemis]
- e. Attended by nearly half a million young people, the music festival called _____ in New York, 1969, is said to be the most famous event in the history of music.
[Pearl Jam / Woodstock / Live Aid]
- f. The lake town of _____ in India hosts a large Sufi festival, featuring Sufi poetry recitals and qawwalis as part of the annual Urs festival to commemorate the Sufi saint Muin-ud-din Chishti.
[Fatehpur Sikri / Ajmer / Agra]

3. Fill in the blanks using the words given at the bottom.

- a. The _____ Film Festival in the USA is named after a famous character played by Robert Redford.
- b. A huge music festival called Mawazine is held in _____, bringing together African artists and famous international stars. With an audience of more than a million, it is among the biggest music festivals in the world.
- c. Novi Sad in Serbia hosts a music festival called _____ at the Petrovaradin Fortress beside the Danube.
- d. The annual Sawai Gandharva Bhimsen Mahotsav in Pune is the biggest festival of classical music in India. It was started by the Late _____ to commemorate the life and work of his guru Pandit Sawai Gandharva.
- e. Originally a gathering of cattle breeders and small vendors, the _____ Fair in Rajasthan is a huge attraction due to its dances, music and competitions.

Rabat Sziget Sundance Cairo Exit Pandit Ravi Shankar Pushkar
Pandit Bhimsen Joshi Surajkund Sunfest

13. Books and Authors

1. Books can be divided into many genres. A genre is a style of art, literature or music. Read the clues and write the genre(s).

[whodunnit thriller humour non-fiction fantasy horror science fiction (sci-fi) biography]

- a. Works such as The Prince by Machiavelli and Stephen Hawking's A Brief History of Time fall into this category. Such novels are based on real-life facts or theories. _____
- b. Books about a person's life written by another person; Akbarnama by Abul Fazl and Harshacharita by Banabhatta are works in this genre. _____
- c. P G Wodehouse and Jerome K Jerome were masters of this style. _____
- d. Stories based in future worlds with technologically advanced societies; Ender's Game and The Invisible Man are good examples. Isaac Asimov and H G Wells wrote in this style. _____
- e. Stories by Stephen King such as The Shining and Carrie fall into this category. Another famous example is The Exorcist. _____
- f. A type of crime novel where the hero or heroine solves a crime and unveils the criminal at the end. Agatha Christie and P D James wrote in this style. _____
- g. This style creates an atmosphere of suspense, tension and excitement. Alistair MacLean has written books in this genre. The Guns of Navarone and Where Eagles Dare are examples. _____
- h. Stories about imaginary beings and worlds that cannot exist in real life; The Lord of the Rings and The Chronicles of Narnia are such books. _____

2. Fill in the blanks.

- a. The Guide, which was adapted into a very successful film, was written by _____.
- b. Sarat Chandra Chattopadhyay's novel _____ has been adapted for films in more than five Indian languages.
- c. Arundhati Roy won the _____ for The God of Small Things.
- d. Adolf Hitler wrote Mein Kampf. The title of the book means _____.
- e. Doctor Zhivago is written by _____.
- f. All children, except one, grow up. This famous line is from the book _____ by J M Barrie.
- g. He was an old man who fished alone in a skiff in the Gulf Stream and he had gone eighty-four days now without taking a fish. This line is from Ernest Hemingway's _____.
- h. _____ wrote Long Walk to Freedom.

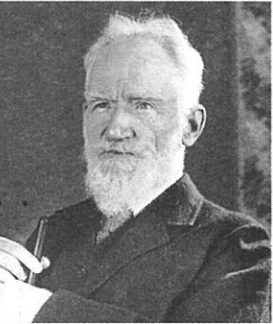
Pulitzer Prize Boris Pasternak my camp Vijay Anand R K Laxman my struggle Nelson Mandela R K Narayan Leo Tolstoy
For Whom the Bell Tolls Peter Pan Jawaharlal Nehru M K Gandhi Man Booker Prize Anandamath Devdas The Old Man and the Sea



Audrey Hepburn starred in *Breakfast at Tiffany's*, which was adapted from a book.

3. Tick the correct option or options.

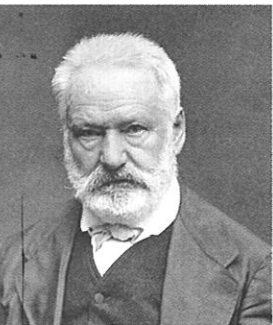
1. The Sahitya Akademi Award is given by the Sahitya Akademi, India's National Academy of Letters. Its recipients include
a. Javed Akhtar b. Mahasweta Devi c. Mridula Garg d. Chetan Bhagat
2. Which of the following authors are famous for their short stories?
a. Saki b. O Henry c. Anton Chekhov d. Edgar Allan Poe
3. The name of this book about a squadron of pilots in World War II has become synonymous with a problem that cannot be solved. It is
a. Square One b. Paradox 11 c. Catch-22 d. Conundrum
4. Saki was the pseudonym used by the author of works such as *The Open Window* and *The Storyteller*. His real name was
a. C S Lewis b. Mark Twain c. H G Wells d. H H Munro
5. This play, written by George Bernard Shaw, was about how a professor transforms a young flower girl into a polished society woman. It was later made into a musical play and a film called *My Fair Lady*. It is
a. Pygmalion b. Brigadoon c. Hello, Dolly! d. Hairspray
6. Banabhatta was an author in the court of King Harshavardhana. His works include
a. Kadambari b. Nagananda c. Ratnavali d. Harshacharita
7. Many stories are written in the form of verse. Pick the verse novel written by Vikram Seth.
a. Paradise Lost b. Mockingjay c. Dubliners d. The Golden Gate
8. The *Mousetrap* is a mystery play. It is the world's longest running play, and after each show the audience is traditionally asked to not reveal the ending after they leave the theatre. The play was written by
a. Agatha Christie b. G B Shaw c. James Joyce d. Sidney Sheldon
9. A famous Indian journalist and writer; his works include the book *Train to Pakistan* and his weekly column *With Malice Towards One and All*. He is
a. Arun Shourie b. Vir Sanghvi c. Raja Rao d. Khushwant Singh
10. Which French writer is the author of works such as *The Hunchback of Notre Dame* and *Les Miserables*?
a. Voltaire b. Marcel Proust c. Victor Hugo d. Jules Verne
11. Gabriel Garcia Marquez is considered one of the greatest writers of the 20th century. Which of these are books written by him?
a. Love in the Time of Cholera b. One Hundred Years of Solitude
c. The General in His Labyrinth d. Living to Tell the Tale



George Bernard Shaw



A scene from the musical play *My Fair Lady*

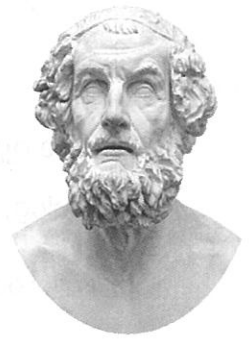


Victor Hugo

The *Mousetrap*'s 22461th show was staged in 2006.



14. Epics



Homer



Dante

1. An epic is a long poem, usually derived from ancient legends. Fill in.

[Aeneid John Milton Ramayana Amir Khusrau Gilgamesh Kalidasa
Firdawsī Odyssey The Tale of the Heike Mahabharata Manimegalai]

- The Iliad by Homer is the story of the Trojan War. Homer's second epic is believed to be a sequel to the Iliad, and describes the homeward journey of one of the Greek heroes after the war ends. It is the _____.
- The Shah-nama is the story of generations of Persian kings from mythical times to the 7th century. It was written by _____.
- One of the oldest written stories; from the Mesopotamian civilisation; clay tablets recovered from an ancient library in Nineveh contain this epic. It is based on the life and heroics of _____.
- Shilappadigaram is a Tamil epic. Its sequel is based on the journey of the hero's daughter who has the same name. It is _____.
- The epic Raghuvamsha tells the story of the Solar dynasty to which the kings Raghu, Dasharatha and Rama belonged. It has a brief version of the Ramayana. It was written by the poet _____.
- This Indian epic was written by the sage Valmiki. The Thai Ramakien and the Burmese Yama Zatdaw are derived from it. It is the _____.
- Paradise Lost, published in 1667, tells the story of how Adam and Eve were expelled from paradise after disobeying God. This epic was written by _____.
- This Japanese epic is based on a real-life feud between two powerful clans. It includes stories of samurai warriors. _____.



Carving on a temple wall showing a scene from the Ramayana

2. Tick if true.

- In the Mahabharata, the hundred Kaurava brothers had only one sister—Duhshala.
- In the epic Beowulf, the Scandinavian hero Beowulf battles a monster called Grendel.
- Virgil's epic Aeneid is the story of Aeneas, a Trojan who survived the Trojan War and became the founder of the Roman race.
- In his epic poem The Divine Comedy, the narrator Dante is guided by the Roman poet Virgil in his journeys in the afterlife.
- Achilles is the main character in Homer's Odyssey.
- The Pandava Bhima married a demoness called Hidimba, and there is a temple dedicated to her at Manali.
- Shilappadigaram, a Tamil epic, is the story of how Kannagi avenges the injustice done to her husband Kovalan.



A scene from the Mahabharata

Illustrations from the Shah-nama



15. Colourful Language

1. Tick the option that best mirrors the relationship between the first two words in the question .

- a. Ecology is to environment as cytology is to living cells / organs / tissues.
- b. Philosopher is to ideas as palaeontologist is to bacteria / bones / fossils.
- c. Optics is to light as nephrology is to nerves / liver / kidneys.
- d. Seismology is to earthquakes as pharmacology is to seeds / farming / drugs.
- e. Theology is to religion as pedagogy is to feet / children / teaching.
- f. Craniology is to skull as ergonomics is to money / environment / people at work.
- g. Cosmologist is to the universe as psephologist is to elections / poverty / economy.



2. Choose the right idioms from below to fit the meaning given within the brackets.

sitting duck lame duck hit the roof hit the headlines under the weather weather the storm
think on your feet think out of the box turn the page turn the tables

- a. With only a week left before the elections, the president is little more than a _____ .
(with little power left)
- b. You have to _____ to make your project different from the rest. (think creatively)
- c. We must stop thinking about last year's poor results and _____ to the next academic year. (leave a difficult situation behind and move on)
- d. As usual, he is involved in a controversy, but I think he will _____ this time, too. (survive difficulties)
- e. Unarmed and unprepared, the watchman at the gate was a _____ for the attackers. (easy target)
- f. Raj had won all their previous matches, but today Arun _____ and defeated him. (reverse a situation)
- g. The quiz will be tough. You will need to _____ to answer the questions. (think and respond quickly)
- h. I had to cancel my travel plans, as I was _____. (ill)
- i. When Rani saw the mess created by the children, she _____. (to suddenly become very angry)
- j. The airline has _____ for having the worst safety standards.
(to become important news)

3. Fill in the appropriate foreign-language word or phrase from below to complete the sentences.

in situ haute couture coup d'état sine qua non volte-face quid pro quo bric-a-brac inter alia carte blanche

- The stolen items included, _____, four valuable paintings. (among other things)
- Under the microscope I could observe the bacteria growing _____. (in the original place)
- His house is full of _____ collected during his travels. (small ornamental objects)
- The country is in turmoil due to the _____ by the military. (government overthrow)
- Paris, the home of Dior and Pierre Cardin, is the centre of _____. (high fashion)
- The release of two prisoners was a _____ for freeing the hostages. (an equal exchange)
- After his promise to vote for us, his _____ came as a shock. (a reversal of opinion/plan)
- The government has given the military _____ in the strife-torn region. (unrestricted power)
- Suspense is the _____ of an Agatha Christie novel. (essential ingredient)

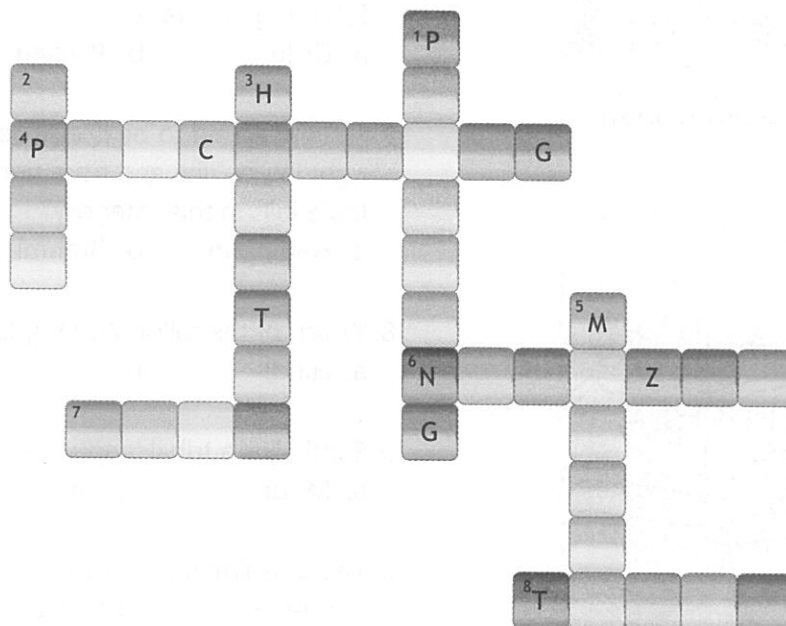
4. Solve this Internet-vocabulary crossword.

Down

- Attempt to seek personal and financial information from users by email
- Irrelevant or unsolicited emails
- A word or phrase preceded by a hash (#) on Twitter to identify messages on a specific topic
- An exact copy of a site

Across

- A form of audio or video broadcasting using the Internet
- Uses the Internet quite a lot
- Online journal, usually run by an individual
- Topic that becomes popular on social sites like Twitter at a particular time



16. Scripts

A script is a set of letters that is used to write a language. Often, the same script is used to write several languages.

1. Tick the correct option or options.

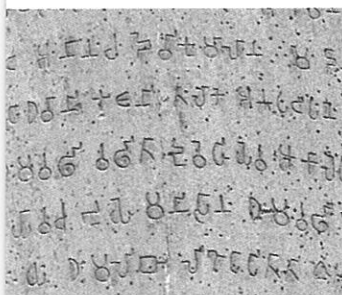
- The earliest known script, written by making wedge-shaped marks on wet clay, is called cuneiform. It was developed by the
a. Chinese b. Egyptians c. Harappans d. Mesopotamians
- The Ashokan inscriptions are among the oldest written records found in India. Most of them are written in Prakrit languages. The two main scripts used are:
a. Brahmi b. Kharoshthi c. Grantha d. Arabic
- Pick the two oldest South Indian scripts that developed from Brahmi.
a. Tamil b. Grantha c. Kannada d. Kadamba
- Which of the following scripts did James Prinsep decipher?
a. Hebrew b. Harappan c. Brahmi d. Kharoshthi
- Jean-Francois Champollion of France played a key role in deciphering the Egyptian hieroglyphs. His findings were based on an artefact which had the same inscription in three different scripts. The artefact was the
a. Stele of Hammurabi b. Rosetta Stone
c. Papyrus of Ani d. Nimrud Tablet
- Arabic scripts are written from right to left. Besides Arabic, which of the following languages are written in Arabic scripts?
a. Urdu b. Persian c. Hebrew d. Malay
- A script is said to be boustrophedon if it is written alternately from left to right in one line and from right to left in the next. Which ancient script used in India falls in this category?
a. Harappan b. Brahmi c. Arabic d. Grantha
- Which of the following languages can be written in the Devanagari script?
a. Hindi b. Sanskrit c. Marathi d. Bodo
- Santhali is a tribal language that has a script of its own. The script is called
a. Modi b. Coorgi c. Ol Chiki d. Damili
- The Musalman is an Urdu newspaper which is handwritten by calligraphers before being mass-produced. It is published in
a. Kashmir b. Mumbai c. Lucknow d. Chennai



Egyptian hieroglyphs



A Harappan seal with script



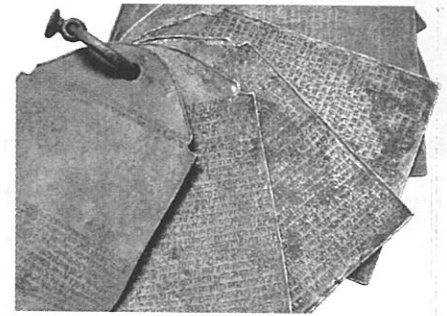
Brahmi script on the Ashokan pillar at Firoz Shah Kotla, Delhi

Carving on the Qutb Minar in the Kufic style of Islamic calligraphy



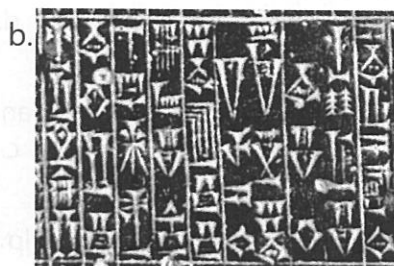
2. Tick if true.

- a. English is written in the Latin script. ☐
- b. The Chinese script has thousands of characters. ☐
- c. Pali and Prakrit are ancient scripts once used in India. ☐
- d. The Kufic style is the earliest style of Brahmi calligraphy. ☐
- e. After the Mesopotamians, the Chinese and the Mesoamericans independently developed their own scripts. ☐
- f. Marathi is written in a kind of Devanagari script called Balbodh. ☐
- g. The Tulu language is written in Kannada as it has no script of its own. ☐
- h. The script for writing the Sinhala language developed from Brahmi. ☐
- i. Kharoshthi may be written from left to right or the other way round. ☐
- j. The Greek, Hebrew and Aramaic (ancestor of Arabic) scripts came from the Phoenician script, which in turn came from Egyptian glyphs. ☐



Copper plates from Vijayanagar, with Sanskrit inscriptions in the Nagari script

3. Number the picture to show which script it shows.



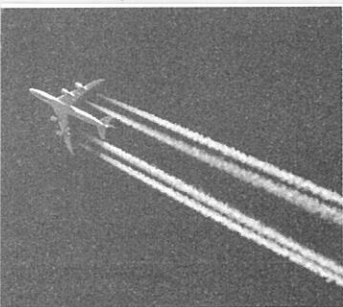
1. Kannada 2. Chinese 3. Egyptian hieroglyphs 4. Mayan glyphs
5. Latin 6. Cuneiform 7. Harappan



17. Aviation

Tick the correct option or options.

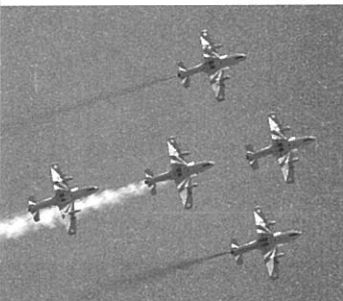
- The long white streaks that form behind some aircraft are called
a. plumes b. smoke trails c. contrails d. exhaust fumes
- Which of these aeroplane models are used as commercial passenger planes?
a. Boeing 747 b. Airbus A320 c. Dreamliner d. Cessna 411
- The first manned flight was in a
a. glider b. plane c. hot-air balloon d. gyrocopter
- What is the name given to any aircraft of the US Air Force on which the President of the United States is travelling?
a. Black Hawk b. Kitty Hawk c. Eagle One d. Air Force One
- An airship is a gas-filled aircraft that is lighter than air. The Hindenburg was a German passenger airship that caught fire on 6 May 1937. Another kind of airship commonly used for advertising is the
a. drone b. blimp c. flogo d. floatship
- Pick the correct airport-city pairs.
a. Charles de Gaulle-Paris b. Kempegowda International-Chennai
c. Changi-Singapore d. Heathrow-London
- Pick the aircraft that are used by the Indian Air Force.
a. Dornier b. Chetak c. Mirage 2000 d. MiG-29
- Derived from a French word meaning help me, this word signal is used as a distress call by pilots of planes and ships. It is
a. SOS b. mayday c. pan-pan d. securite
- Lawrence Sperry invented a revolutionary system that now makes it possible for pilots to rest during long-distance flights. It was the
a. self-pilot b. navigator c. collision control d. autopilot
- Flight 19 was a bomber squadron believed to have disappeared in the Bermuda Triangle. Such incidents have also occurred in the Formosa Triangle, off the coast of
a. Finland b. Tahiti c. Japan d. Trinidad
- The Spirit of St Louis was the aircraft used by _____ to cross the Atlantic Ocean. It was the first non-stop solo flight across the Atlantic.
a. Amelia Earhart b. Orville Wright c. Bessie Coleman d. Charles Lindbergh



Cloud lines form when water vapour condenses and freezes around small particles in the exhaust fumes.



The Sukhoi planes are some of the most efficient fighter planes of the Indian Air Force.

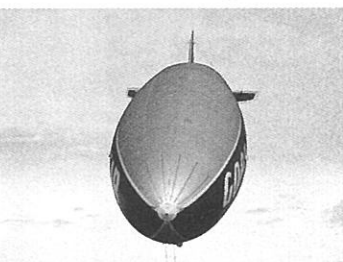


The aerobatics demonstration team of the Indian Air Force is called Surya Kiran.



A commercial Airbus plane

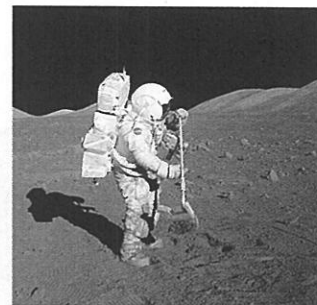
A kind of airship commonly used for advertising



18. Spaceflight

Tick the correct option or options.

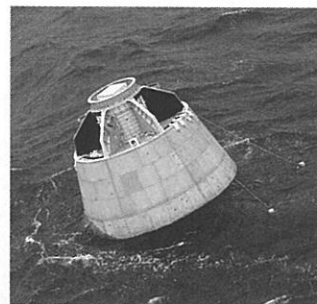
- On 12 April 1961, Yuri Gagarin became the first person on a spaceflight. His spacecraft:
 - Sputnik 1
 - Vostok 1
 - Soyuz 1
 - Salyut 1
- On 12 October 1964, the Soviets achieved many spaceflight firsts with the launch of the spacecraft Voskhod 1. Which of these were among the firsts?
 - the first woman in space
 - the first to carry more than one person
 - spaceflight without spacesuits
 - spaceflight in a reusable spacecraft
- A pressurised suit is needed in regions of no or low atmospheric pressure. Without it
 - external bodily liquids such as tears and saliva will boil
 - muscles will stop working
 - the skeleton will collapse
- If needed, astronauts wear a Portable Life Support System (PLSS) as a backpack. It
 - supplies oxygen for breathing
 - removes all body wastes
 - has water-cooling equipment
 - has a two-way radio
- Who was the first person to do a spacewalk?
 - Neil Armstrong, 20 July 1969
 - Valentina Tereshkova, 16 June 1963
 - Alexei Leonov, 18 March 1965
 - Ed White, 3 June 1965
- SAFER (Simplified Aid For Extra-vehicular Rescue) is a device designed to
 - repair or rescue space vehicles
 - rescue ill or injured spacewalkers
 - allow spacewalkers to move around in space using small jet thrusters
- Which was the first space station (a large manned satellite for scientific studies)?
 - Skylab
 - Mir
 - Tiangong-1
 - Salyut 1
 - International Space Station (ISS)
- The US space shuttle was a reusable spacecraft system used between 1981 and 2011.
 - A space shuttle launched like a rocket and its orbiter landed like an aeroplane.
 - Its five orbiters were: Columbia, Challenger, Discovery, Atlantis and Endeavour.
 - The space shuttle was used for missions to the moon.
 - The space shuttle carried crew and supplies for the International Space Station.
- Six Apollo missions put _____ people on the moon between 1969 and 1972.
 - twelve
 - ten
 - eight
 - six
- The first manned private spaceflight took place in 2004. The spacecraft used was
 - Mars One
 - SpaceShipOne
 - SpaceX Dragon
 - VSS Enterprise
- Dennis Tito was the first fee-paying 'space tourist'. Who was the first such woman?
 - Sally Ride
 - Chiaki Mukai
 - Sunita Williams
 - Anousheh Ansari



In space, spacesuits are needed to survive outside a spacecraft.



An astronaut using SAFER during a spacewalk. Spacewalks are required for doing tasks such as repairing satellites or building space stations.



ISRO's test crew module after its successful re-entry and splashdown in December 2014



The first woman 'space tourist' holds a plant grown in the ISS.

19. Organisations That Care

1. Around the world, organisations are providing relief, fighting poverty and helping to protect human rights. Can you name these organisations?

a. Among the world's largest human rights movements, its iconic logo of a candle wrapped in barbed wire was inspired by the ancient Chinese proverb: It is better to light a candle than to curse the darkness. _____

b. Established in 1863, it is part of the largest humanitarian network in the world. It has won three Nobel Peace Prizes (1917, 1944, 1963). _____

c. Set up in 1948, it is the world's oldest global environmental organisation. It is known for its Red List of Threatened Species, a comprehensive inventory of the conservation status of species all over the world. _____

d. Set up by a group of French doctors and journalists who had worked in the Nigerian Civil War (1967–70), it is now one of the largest organisations providing emergency medical care to people affected by conflict and disasters. It was awarded the Nobel Peace Prize in 1999. _____

e. An environmental organisation noted for its aggressive campaigns and direct actions, it is known by its flagship vessel Rainbow Warrior. _____

f. Started as a relief operation in 1972 in post-war Bangladesh, it is now among the largest development organisations, tackling poverty and empowering the poor in Bangladesh and other countries, using tools like microfinance, education and healthcare. _____

g. One of the largest NGOs in India, it was set up in 1994 to provide pre-school education to children in slums. It now works all over India. Its mission is Every Child in School and Learning Well. _____

h. This Delhi-based NGO converts used clothes, household goods and other urban discards into usable resources for the poor, besides running development projects in villages and slums. _____

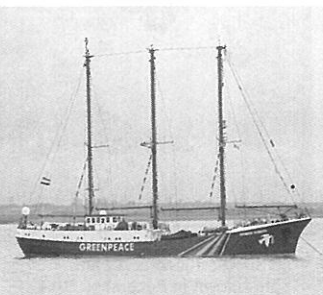
i. This organisation was formed at the end of World War II in 1945 as the Cooperative for American Remittances to Europe, which was changed to Cooperative for Assistance and Relief Everywhere in 1993. _____



Jean Henri Dunant,
founder of the Red Cross



Bangladeshi social activist
Sir Fazle Hasan Abed



The Rainbow Warrior



A campaign for human
rights by Amnesty

IUCN Amnesty International International Committee of the Red Cross Greenpeace
Human Rights Watch Goonj Médecins Sans Frontières (MSF) BRAC CARE Pratham Oxfam

2. Tick the correct option.

1. BRAC was set up as the Bangladesh Rehabilitation Assistance Committee by
a. Md Yunus b. Mujibur Rahman c. Fazle Hasan Abed
2. Which of these has a logo that originated from a panda named Chi-Chi that had been transferred from Beijing Zoo to London Zoo in 1958?
a. WWF b. PETA c. Greenpeace
3. An international confederation of 17 organisations working in more than 90 countries to fight poverty, it was founded in Oxford, 1942, by social activists and academics to raise funds for hungry children in war-torn Greece.
a. YMCA b. Oxfam c. UNICEF
4. In 1979, airline purser Rippan Kapur, along with six friends, started an organisation with Rs 50. Though Rippan died in 1994, his organisation works to help thousands of needy children. The organisation is
a. CRY b. Deepalaya c. Smile Foundation
5. Name the animal-rights group which has a slogan "animals are not ours to eat, wear, experiment on, use for entertainment or abuse in any way."
a. RSPCA b. PETA c. The Humane Society
6. Help Unite Generations (HUG), a programme in which young people volunteer their time for the elderly, has been started by
a. Goonj b. Sammaan c. HelpAge India
7. During the Spanish Civil War (1937), John Langdon-Davies met an orphaned boy whose father had left a note asking anyone who found the boy to take care of him. He was inspired to start Foster Parents Plan for Children in Spain to help children affected by the war. The organisation is now known as
a. Plan b. ActionAid c. Save the Children

3. Tick if true.

- a. The Bengal tiger is rated as endangered on the IUCN Red List of Threatened Species.
- b. The Red Cross was set up in 1863 by French doctor Bernard Kouchner.
- c. Survival International is a human-rights organisation that campaigns for the rights of indigenous and tribal peoples.
- d. Médecins Sans Frontières (Doctors Without Borders) is also called Médecins du Monde (Doctors of the World).



A self-defence training session for girls by Plan



An Oxfam worker teaching children to wash hands in Sierra Leone, Africa



Students reach out to the elderly as part of the HUG programme.



An anti-fur demonstration by PETA

20. Wars and Revolutions

1. The world has witnessed a number of wars, conflicts and revolutions, many of them causing large-scale death and destruction. How much do you know about them? Choose the correct option.

1. Starting in the 11th century, European Christians called by the popes waged a series of wars to reclaim the Holy Land (Palestine) from Muslim rule. These wars were called the
a. Holy Wars b. Crusades c. Peasants' Wars

2. The _____ Revolution gave the motto Liberty, Equality, Fraternity. It also introduced the guillotine, an infamous device that was used to execute King Louis XVI and his wife Marie-Antoinette, among others.
a. American b. Russian c. French

3. Florence Nightingale became known for her work as a nurse during this war, which is also remembered for the famous Charge of the Light Brigade. Name this war.
a. Hundred Years' War b. American Civil War c. Crimean War (1853–56)

4. The Russian Revolution (1917) led to the overthrow of the Tsar and the capture of power by the Bolsheviks, establishing a communist government led by
a. Joseph Stalin b. Vladimir Lenin c. Leon Trotsky

5. The assassination of the heir to the throne of the Austro-Hungarian Empire, Archduke Franz Ferdinand, and his wife, Sophie, on 28 June 1914, in _____ triggered World War I.
a. Vienna b. Sarajevo c. Budapest

6. Following the Chinese Communist Revolution of 1949, Chinese leader Mao Zedong began an intensive Five-Year Plan to promote industry and agriculture, known as the
a. Great Leap Forward b. Iron Rice Bowl c. Cultural Revolution

7. Name this long and destructive war lasting from 1954 to 1975, in which chemical weapons such as the napalm and Agent Orange were used by US forces.
a. Vietnam War b. Korean War c. Boer War

8. The Cuban Revolution, which established a socialist state in Cuba in 1959, was led by
a. Salvador Allende b. Fidel Castro c. Hugo Chavez

9. Lasting just 13 days, one of the shortest wars in history resulted in a decisive Indian victory and the birth of Bangladesh. It was the
a. Indo-Pak War 1947 b. Indo-Pak War 1965 c. Indo-Pak War 1971

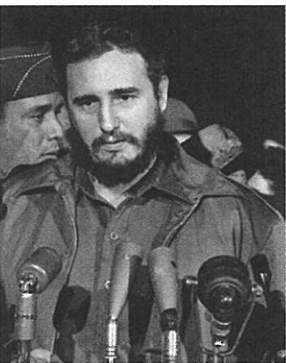
10. The Camp David and Oslo Accords are peace agreements related to the
a. Bosnian War b. Arab–Israeli Wars c. Gulf Wars



Storming of the Bastille, a fortress and prison, during the French Revolution



Exploding napalm bombs in the Vietnam War



Fidel Castro

Leaders of Israel, the US and Palestine at the Oslo Accord



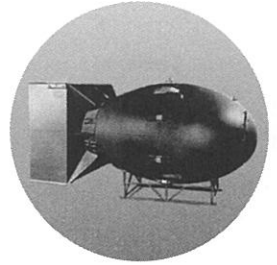
2. World War II Quiz. Choose the correct options in this quiz about the bloodiest war in history, in which about 50 million people are estimated to have died.
- In WW II, Germany, Italy and Japan formed the [Axis Powers / Allied Powers].
 - WW II (1939–45) started with the German invasion of [France / Poland / Russia].
 - German advance into the USSR was stopped in the Battle of [Stalingrad / Leningrad].
 - The Germans used V1 and V2 flying bombs against [Britain / Hungary / France].
 - The US entered the war after Japan's bombing of the American fleet in [Normandy / the Bay of Pigs / Pearl Harbor] in Hawaii on 7 December 1941.
 - In 1940, British troops fighting in France were evacuated from [Calais / Dunkirk / Paris].
 - We shall fight on the beaches, ... we shall never surrender. Who said this when the Germans overran France? [Charles de Gaulle / Winston Churchill / Joseph Stalin]
 - The Germans coded all messages with the help of a machine called [CodeX / Enigma].
 - Called the Desert Fox for his successful campaigns in North Africa, [Friedrich Paulus / Erwin Rommel / H Himmler] was one of Germany's most successful military leaders.
 - On 6 June 1944 (D-Day), the Allies invaded the [Normandy / Riviera / Calais] coast of France that led to the liberation of France from Nazi control.
 - The Supreme Commander of the Allied Forces in Europe was [Douglas MacArthur / Dwight Eisenhower / George Patton], who later became the US president.
 - A turning point in Asia was the Battle of [Kohima / Burma / Imphal] in 1944, in which British and Indian forces defeated the Japanese and stopped their 'March on Delhi'.
 - The mass killing of Jews by the Nazis is known as the [Holocaust / Inquisition / Purge].

3. Read the clues and name these personalities.

- The barbarian king who created an empire stretching from the Rhine to the frontiers of China in the 5th century _____
- The Mongol leader who conquered more land than any individual in history, leaving a trail of death and destruction in Asia and Europe _____
- The Vietnamese revolutionary leader who established the communist-ruled Democratic Republic of Vietnam in 1945 _____
- The president who led the US during the WW II years; along with Churchill and Stalin (the Big Three), he laid the foundations of the UN. _____
- Probably the most well-known victim of the Holocaust, she wrote in her diary: I still believe, in spite of everything, that people are truly good at heart. _____



US ships burning at Pearl Harbor



Fat Man, codename for the type of atomic bomb dropped on Nagasaki



Winston Churchill



General Eisenhower



Franklin D Roosevelt

Attila the Hun Mao Zedong Ho Chi Minh Anne Frank Joan of Arc Genghis Khan Woodrow Wilson Franklin D Roosevelt

21. Great Minds



Rene Descartes

Many great thinkers and their ideas have shaped our world. Many of them, like Mahatma Gandhi, Martin Luther King, Jr and Albert Einstein, are well known. Here are some more.

Rene Descartes French philosopher and mathematician. Considered the father of modern philosophy, he is famous for his philosophical declaration, "I think; therefore I am".

Voltaire French philosopher and writer known for his wit, satire and defence of freedom of religion and expression. He often got into trouble with the authorities for his outspoken views.



Leo Tolstoy

Karl Marx German philosopher and revolutionary thinker best known for his works Das Kapital and The Communist Manifesto (written with Friedrich Engels)

Leo Tolstoy Russian writer and moral thinker whose writings on nonviolent resistance influenced leaders like Mahatma Gandhi and Martin Luther King, Jr. Considered among the world's greatest novelists, his most famous works include the epic novel War and Peace, and Anna Karenina.



Mary Wollstonecraft

Adam Smith Scottish social philosopher and economist, best known for his landmark book The Wealth of Nations, which laid down a framework for free-market economics

Mary Wollstonecraft English writer who advocated women's equality in her book A Vindication of the Rights of Woman, which demanded educational reforms for women

Rosa Parks Civil rights activist whose refusal to surrender her seat to a white passenger on a bus sparked a movement against the segregation of blacks and whites in the USA. An icon of the Civil Rights Movement, she has been called the 'first lady of civil rights'.



Rosa Parks

Subrahmanyan Chandrasekhar Indian American astrophysicist, famous for his mathematical theory of black holes and the Chandrasekhar limit, which describes the maximum mass of a white dwarf star

Stephen Hawking One of the most famous scientists of modern times, he is known for his work on the subject of black holes and the origin of the universe, as well as his bestselling books like A Brief History of Time, which have helped popularise science. All of this despite being almost totally paralysed due to motor neuron disease



Stephen Hawking

Amartya Sen Indian economist known for his work on welfare economics, social choice theory, economic and social justice, as well as on famines, their causes and solutions. He is a recipient of the Nobel Prize (1998) and the Bharat Ratna (1999).

1. Tick the correct option.

1. Name the French philosopher best known for his work *The Social Contract*, in which he argued that a government must be based on the consent of the governed.
a. Voltaire b. Rene Descartes c. Goethe d. Jean-Jacques Rousseau
2. Name the book that contains the famous line *Workers of the World, Unite. You have nothing to lose but your chains!*
a. Das Kapital b. War and Peace c. Candide d. The Communist Manifesto
3. Name the American feminist best known for her book *The Feminine Mystique* (1963), which explored the causes of the frustrations of modern women in traditional roles.
a. Virginia Woolf b. Betty Friedan c. Rachel Carson d. Simone de Beauvoir
4. Which Austrian neurologist is known as the father of psychoanalysis, a new approach to understanding the human personality?
a. Carl Jung b. Ernst Mach c. Karl Popper d. Sigmund Freud
5. A Gandhian who has led the Chipko Movement, he is noted for creating Chipko's slogan *Ecology is permanent economy*. Name this Indian environmentalist.
a. K S Karanth b. C P Bhatt c. Anna Hazare d. Sunderlal Bahuguna
6. A newspaper obituary erroneously published before his death called Alfred Nobel 'a merchant of death', condemning him for inventing _____. Forced to think about his legacy, he set aside the bulk of his wealth to establish the Nobel Prizes.
a. dynamite b. revolver c. DDT d. land mines



Jean-Jacques Rousseau



Betty Friedan



Alfred Nobel

2. Name the thinker or leader who said these words. Use the names at the bottom.

- a. I do not agree with what you have to say, but I'll defend to the death your right to say it.

- b. The fool doth think he is wise, but the wise man knows himself to be a fool.

- c. Those who deny freedom to others, deserve it not for themselves. _____
- d. For to be free is not merely to cast off one's chains, but to live in a way that respects and enhances the freedom of others. _____
- e. Let us pick up our books and pens, they are our most powerful weapons. One teacher, one book, one pen, can change the world. _____
- f. My goal is simple. It is a complete understanding of the universe, why it is as it is and why it exists at all. _____



Voltaire



Sigmund Freud

Abraham Lincoln Stephen Hawking Nelson Mandela Malala Yousafzai William Shakespeare Voltaire

22. Quiz 2

1. The Civil Services Quiz. Tick if true.

- a. The government's work is carried out by officers of the different civil services. ☐
- b. The officers of the Indian military are also a part of the civil services. ☐
- c. The Union Public Service Commission (UPSC) conducts different examinations for selecting officers for the civil services of the Indian government. ☐
- d. The UPSC is also responsible for selecting the officers of all state governments. ☐
- e. The civil-services examination conducted by the UPSC is called the JEE. ☐
- f. Officers of the Indian Administrative Service (IAS), Indian Police Service (IPS) and Indian Forest Service (IFS) can work either under a state government or the central government. ☐
- g. Indian Foreign Service (IFS) and Indian Revenue Service (IRS) officers work only under the central government. ☐
- h. Block development officers (BDOs), inspectors and constables are state-level officials. ☐
- i. The officer heading a police station is not an IPS officer. ☐
- j. The district magistrate (district collector) is an IAS officer. ☐
- k. There is nothing called the Income Tax Service. ☐
- l. A commissioner of income tax is an IRS officer. ☐
- m. Certain state-level officials can be promoted to the IAS and the IPS. ☐

2. Fill in the blanks, choosing from the given options.

- a. Indian Foreign Service, _____ and _____ officers are initially trained at the Lal Bahadur Shastri National Academy of Administration.
- b. Mostly officers of the _____ serve in India's embassies.
- c. The highest-ranking civil servant of India is the _____.
- d. The highest-ranking civil servant of a state is the _____.
- e. E Sreedharan, known as the Metro Man, was a former _____ officer.
- f. K R Narayanan, the tenth president of India, was a former _____ officer.
- g. Director of Intelligence Bureau (IB) is an _____ officer.



K R Narayanan



E Sreedharan

Chief Commissioner Director General Cabinet Secretary Chief Secretary IPS IRS IES IAS
 Indian Foreign Service Indian Forest Service Indian Engineering Service (IES) Indian Railways Service of Engineers

3. Tick the correct option or options.



1. Which of these are parliamentary republics like India?
a. USA b. Canada c. Mongolia d. Israel
2. Which of these countries have a presidential form of government like that of the USA?
a. Mexico b. China c. India d. Argentina
3. Among these, the countries in which the monarch has unlimited powers are
a. UK b. Saudi Arabia c. Brunei d. Bhutan
4. China is the world's most populous country. Which country has the lowest population?
a. Bhutan b. Venezuela c. Vietnam d. Vatican City
5. Which is the oldest epic?
a. Mahabharata b. Ramayana c. Iliad d. Epic of Gilgamesh
6. Odyssey is an epic written in
a. English b. Italian c. Greek d. Latin
7. Complete the series: million, billion, trillion, _____
a. zillion b. quadrillion c. centillion d. quintillion
8. Who invented the petrol-engine car?
a. Karl Benz b. Henry Ford c. James Watt d. Kiichiro Toyoda
9. Tola is a traditional Indian measure of mass. One tola is about
a. 1.75 mg b. 0.55 kg c. 11.66 g d. 10.25 mg
10. The first cricketer to score international centuries in Tests, ODIs and T20s is
a. Chris Gayle b. Sachin Tendulkar c. Ricky Ponting d. Suresh Raina

11. Which of these is a rose bud?

a.



b.



c.



12. Among the males of which of these apes would you find blackbacks and silverbacks?

a.



b.



c.



23. The Southern States

Karnataka, Kerala, Andhra Pradesh and Telangana are the states that lie in the southern part of India. The region has three union territories as well—Lakshadweep in the Arabian Sea, the Andaman and Nicobar Islands in the Bay of Bengal and Puducherry, consisting of Puducherry, Yanam, Karaikal and Mahe, on the mainland.

Southern India's landscapes range from hill stations to boulder-strewn plateaus, forests, river valleys, backwaters and beautiful beaches. The region has some of India's earliest human habitations and also the 'Silicon Valley of India'. It has many historic sites, and is a cradle of Indian temple architecture.

1. Tick the correct option or options.

- Which is the only South Indian state that is completely landlocked?
a. Tamil Nadu b. Karnataka c. Telangana d. Kerala
- Which two groups of islands does the Ten Degree Channel separate? The other two are separated by the Nine Degree Channel.
a. Andaman b. Nicobar c. Laccadive d. Minicoy
- The chain of shoals (mounds of sediment) called Adam's Bridge was according to the Ramayana a bridge used by Rama's army to reach Ravana's kingdom. Adam's Bridge lies between _____ and _____.
a. India's mainland b. India's Pamban Island
c. Sri Lanka's Mannar Island d. Lakshadweep
- Which of the following hill stations are in Tamil Nadu?
a. Ooty b. Yercaud c. Coonoor d. Kodaikanal
- The Nilgiri Hills have possibly got their name from this plant which flowers once every twelve years and turns the hills blue. It is the blue
a. kurinji b. jacaranda c. hydrangea d. rhododendron
- Located in the Western Ghats near Munnar in Kerala, this is the highest point of India south of the Himalayas. It is the
a. Doda Betta b. Anai Mudi c. Mukurthi d. Avalanche Hill
- Karnataka has many waterfalls, including India's highest—the Kunchikal Falls. Three of the waterfalls below are in Karnataka. Pick the one in Telangana.
a. Jog b. Barkana c. Kuntala d. Shivanasamudra
- Among these beaches, three are in Kerala. Which one is in Andhra Pradesh?
a. Kollam b. Kovalam c. Varkala d. Rushikonda
- A number of family-run restaurants all over India are known by the name Udupi, the place of origin of the food they serve. Udupi is a coastal town in
a. Tamil Nadu b. Karnataka c. Kerala d. Andhra Pradesh



Jog Falls on the river Sharavati in Karnataka



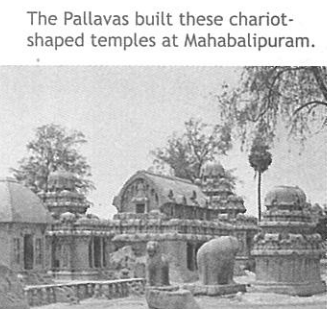
Prehistoric carvings in the Edakkal Caves in Kerala



The Kallanai, or Grand Anicut, on the Kaveri in Tamil Nadu. Built by the Chola king Karikala, it has been in use since the 2nd century AD.



The temples built by the Chalukya kings at Pattadakal are some of the earliest Dravidian-style temples.



The Pallavas built these chariot-shaped temples at Mahabalipuram.

10. The Christian Medical College and Hospital in Vellore is one of the top destinations for medical tourism in India. Which state is it in?
a. Kerala b. Karnataka c. Telangana d. Tamil Nadu
11. Which of the following places have facilities for launching satellites?
a. Sriharikota (Andhra Pradesh) b. Dhanushkodi (Pamban Island)
c. Thiruvananthapuram (Kerala) d. Yelahanka (Karnataka)
12. A film city is a complex of film studios. Chennai has a film city named after the noted actor-turned-politician M G Ramachandran. The Ramoji Film City, possibly the largest film studio complex in the world, is in
a. Chennai b. Bengaluru c. Hyderabad d. Visakhapatnam
13. This city on the border of Puducherry and Tamil Nadu was planned as an international city where people from all countries can live in harmony. It is
a. Nellore b. Auroville c. Neyveli d. Tarangambadi
14. Which of the following tribes live in the Andaman and Nicobar Islands?
a. Jarawa b. Sentinelese c. Toda d. Shompen

2. Write the correct numbers / names from the list. You may repeat these.

State/UT	Capital	Language	Monument/Wildlife Park	Art form/Festival
a. Kerala	-----	-----	Periyar National Park	Onam
b. Tamil Nadu	-----	Tamil	Vedanthangal Bird Sanctuary	Pongal
c. Karnataka	-----	-----	Nagarhole National Park	Ugadi (New Year)
d. Andhra Pradesh	-----	-----	Buddhist monuments at Nagarjunakonda	Ugadi (New Year)
e. Telangana	-----	Telugu	Charminar	Ugadi (New Year) Bidri
f. Puducherry	-----	Tamil ----- Telugu	Manakula Vinayagar Temple	-----
g. Lakshadweep	-----	Mahl	Minicoy lighthouse	-----
h. Andaman and Nicobar Islands	-----	Telugu	Campbell Bay National Park	-----

1. Chennai 2. Bengaluru 3. Hyderabad 4. Thiruvananthapuram 5. Visakhapatnam 6. Port Blair 7. Puducherry
8. Kavaratti 9. Tamil 10. Telugu 11. Kannada 12. Malayalam 13. Urdu 14. French 15. Bengali 16. Nicobarese
17. Mudumalai National Park 18. Ranganthittu Bird Sanctuary 19. Nagarjunasagar-Srisailem Tiger Reserve
20. Silent Valley National Park 21. Barren Island volcano 22. Perumal Par coral reef 23. Falaknuma Palace
24. Sri Aurobindo Ashram 25. Statue of Bahubali at Shravanabelagola 26. Bharatnatyam
27. Yakshagana 28. Kalaripayattu 29. Lava dance 30. Kuchipudi dance 31. Pongal
32. Island Tourism Festival 33. Bidri 34. Kalamkari



Kalaripayattu—an ancient martial art that originated in Kerala



Neelakurinji blossoms

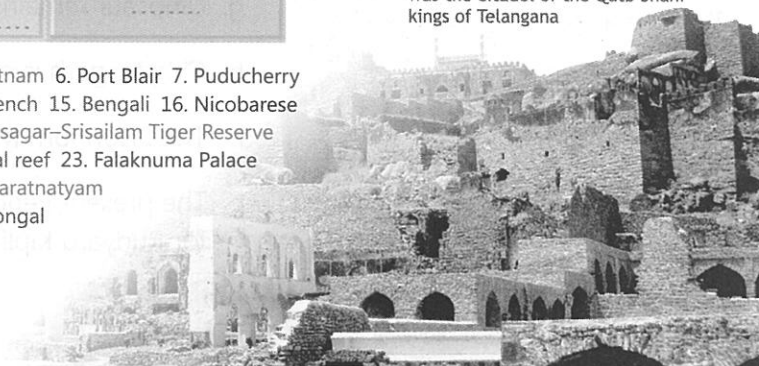


A Toda tribal hut in the Nilgiri Hills



The century-old Pamban Bridge links Pamban Island off the coast of Tamil Nadu with mainland India.

The ruins of the Golconda Fort, which was the citadel of the Qutb Shahi kings of Telangana



24. The Central States

Madhya Pradesh and Chhattisgarh are the two most centrally located states of India. The region consists mainly of rugged plateaus and large tracts of forest. It has been inhabited since prehistoric times and is home to a large tribal population.

1. Write M for Madhya Pradesh, C for Chhattisgarh and M, C for both.

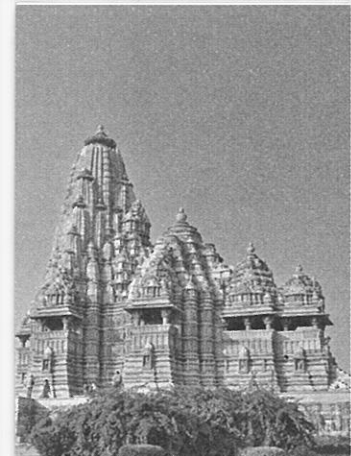
- Bhopal is the state capital. _____
- The state's capital is Raipur. _____
- The state bird is the hill mynah. _____
- The state animal is the wild buffalo. _____
- The state has a large population of Gond tribals. _____
- The state animal is the barasingha (swamp deer). _____
- The state bird is the dudhraj (Asian paradise flycatcher). _____
- The Vindhya and Satpura ranges pass through this state. _____
- The tropic of Cancer and the IST meridian pass through it. _____
- The state has neither any coastline nor any international border. _____



10th-century sculpture from MP

2. Tick if true.

- Madhya Pradesh is India's largest state by area. ☐
- The state of Madhya Pradesh was earlier a part of Chhattisgarh. ☐
- Narmada, the main river of Madhya Pradesh, is older than the Ganga. ☐
- The river Mahanadi flows through Madhya Pradesh. ☐
- Karondi village in Madhya Pradesh is the geographic centre of India. ☐
- The Chhattisgarhi language is a dialect of Hindi. ☐
- Dinosaur remains have been found in the Narmada valley. ☐
- Chhattisgarh is one of the most mineral-rich states of India. ☐
- The Bisonhorn Maria tribals' headdress looks like a bison's horns. ☐
- The present Pench Tiger Reserve in Madhya Pradesh was the setting for Rudyard Kipling's story about Mowgli. ☐



Kandariya Mahadeva Temple at Khajuraho, MP



Prehistoric rock paintings at Bhimbetka, MP



Chitrakot Falls in Chhattisgarh



The Great Stupa at Sanchi, MP

Gwalior Fort, MP, built by the Rajput king Man Singh Tomar



3. Tick the correct option or options.

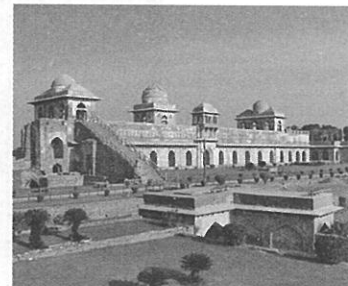
- The following are either in Chhattisgarh or in Madhya Pradesh. Pick the ones in Chhattisgarh.
a. Chitrakot Falls, River Indravati b. Pachmarhi hill station, Satpuras
c. Dhuandhar Falls, River Narmada d. Kotumsar Caves, India's longest
- Which of these national parks are in Madhya Pradesh?
a. Pench b. Kanha c. Bandhavgarh d. Kanger Ghati
- Which Rajput dynasty built most of the Hindu and Jain temples at Khajuraho?
a. Paramara b. Chandela c. Solanki d. Chauhan
- Mandu in the Vindhyas was the capital of Baz Bahadur, the last Sultan of Malwa, who had a musician queen named
a. Roopmati b. Tarabai c. Durgavati d. Mriganayani
- This city in Madhya Pradesh was the capital of the ancient kingdom of Avanti and the second capital of the Gupta king Chandragupta Vikramaditya. It is one of the four sites of the Kumbh Mela as well. The city is
a. Indore b. Ujjain c. Sanchi d. Orchha
- Rani Durgavati, who died defending her kingdom against the Mughals, ruled over the kingdom of the
a. Bhils b. Baigas c. Gujjars d. Gonds
- Which regions of Chhattisgarh specialise in dhokra craft?
a. Bastar b. Raigarh c. Bilaspur d. Korba
- During the tribal agricultural festival _____, children walk on stilts.
a. Madai b. Hareli c. Goncha d. Bhagoria
- This traditional art form of Central India involves narrating incidents from the Mahabharata through singing and acting with musical accompaniment. Teejan Bai of Chhattisgarh is one of its leading performers. It is called
a. Kathak b. Gusadi c. Pandavani d. Lachmanjati
- What is mined at Panna in Madhya Pradesh?
a. gold b. silver c. diamonds d. iron ore
- Bharat Bhawan is a cultural complex and art museum with an excellent collection of tribal art. It is located in
a. Indore b. Gwalior c. Raipur d. Bhopal
- Which city in Madhya Pradesh is the birthplace of the gharana of music to which sitarist Ravi Shankar and sarod player Ali Akbar Khan belonged?
a. Gwalior b. Indore c. Bhopal d. Maihar



Asian paradise flycatcher



The Narmada has cut a gorge through marble rocks at Jabalpur.



Built between two man-made lakes, the Jahaz Mahal in Mandu gives the feel of an anchored ship.



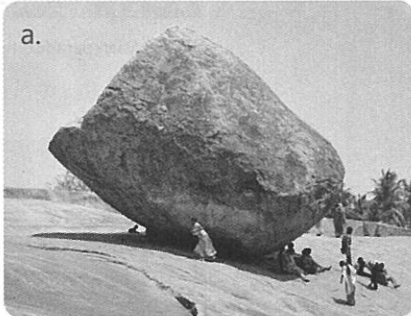
Teejan Bai performing

Now a museum, the Gujari Mahal in Gwalior Fort was built for Man Singh's tribal queen Mriganayani.

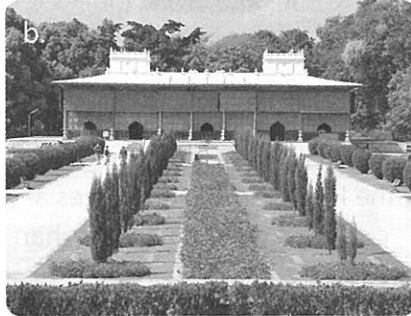


25. Where in India?

1. Where in India are these located?



This delicately balanced natural boulder is called Krishna's Butter Ball. It is at



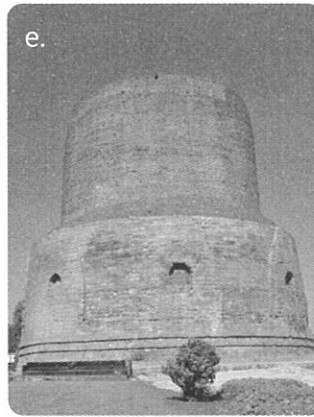
A summer palace built by Tipu Sultan stands in Daria Daulat Bagh, a beautiful garden in



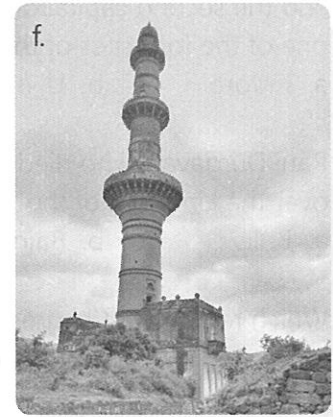
The Lotus Mahal shows a blending of Hindu and Islamic architecture. This building is in



The Kirti Stambha, built by a Jain merchant, is inside the fort at



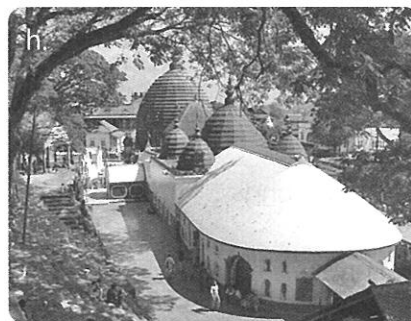
The Dhamekh Stupa, at the site where Gautama Buddha gave his first sermon, is in



The Chand Minar stands inside the fort at Daulatabad, earlier known as



This temple, called the Durga Temple, was built by the Chalukya kings of the Deccan at



The Kamakhya Temple of Assam, a major pilgrimage destination for Hindus, is in

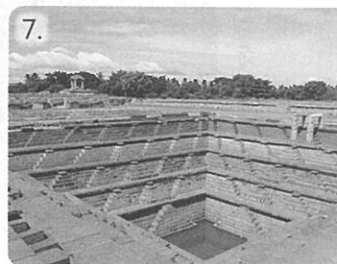


The Cellular Jail, where many Indian freedom fighters were imprisoned, is at

Chittor Hampi Mahabalipuram Sarnath Guwahati Port Blair Srirangapatna Devagiri Aihole

2. Tick the correct option or options.

1. The animal in the picture is a slender loris. Where in India is it found?
 - a. the Himalayan foothills
 - b. the Thar Desert
 - c. the Sundarbans
 - d. Southern India
2. This kind of pigeon is the closest living relative of the extinct dodo. It is named after a region in India where it is found. It is a
 - a. Nilgiri pigeon
 - b. Nicobar pigeon
 - c. Malabar pigeon
 - d. Himalayan pigeon
3. A megalith is a structure made of a single large stone or several such stones. In India, megaliths have been found in
 - a. Marayoor, Kerala
 - b. Sulimalthe, Karnataka
 - c. Viluppuram, Tamil Nadu
 - d. Dannanapeta, Andhra Pradesh
4. India's oldest surviving rock-cut caves, the Barabar Caves, date back to King Ashoka's time. These caves are in
 - a. Bihar
 - b. Maharashtra
 - c. Odisha
 - d. Madhya Pradesh
5. This observatory built by Sawai Raja Jai Singh is similar to his Jantar Mantar observatories at Delhi and Jaipur. Known as the Vedh Shala, it is located in
 - a. Indore
 - b. Lucknow
 - c. Ujjain
 - d. Gwalior
6. Which medieval Indian city had overhead aqueducts for transporting water?
 - a. Jodhpur
 - b. Hampi
 - c. Jaipur
 - d. Daulatabad
7. A stepwell is a well or pond that has steps leading down to the water. There are many old ones in Delhi, Rajasthan and Gujarat. A stepwell may be called
 - a. baoli
 - b. baori
 - c. hamam
 - d. vav
8. Kesar Kyari Bagh on the Maota Lake is a garden with star-shaped flower beds reputed to have been used for growing saffron. This garden is near the fort of
 - a. Amber
 - b. Jodhpur
 - c. Bikaner
 - d. Jaisalmer
9. The mask in the picture is used in a religious ritual that combines dance, mime and music. This kind of ritual is called Theyyam in
 - a. Sikkim
 - b. Assam
 - c. Kerala
 - d. Karnataka
10. The Gaiety Theatre, set up in the nineteenth century, is possibly India's oldest theatre building. It is located in
 - a. Mumbai
 - b. Kolkata
 - c. Kochi
 - d. Shimla
11. Zorbing is the recreational activity of rolling down a slope or on water inside an orb (sphere) made of plastic material. In India, zorbing can be done at
 - a. Lonavala
 - b. Kochi
 - c. Hampi
 - d. Solang Valley



Chandra Shekhar Azad



Lakshmi Swaminathan



Ram Prasad Bismil



Rashbehari Bose



Rani Gaidinliu



Ashfaqullah Khan



Damodar Chapekar



Surya Sen



Udham Singh

26. Revolutionaries

Match by writing the correct number on the picture.

1. Assassinated W C Rand, a British civil servant who had adopted oppressive measures in Pune during the plague epidemic of 1896; hanged in 1897; his two brothers and a friend also hanged for helping him
2. Took part in the Kakori train robbery of 1925, in which Indian revolutionaries looted government money for purchasing arms to fight against the British; hanged in 1927; known for his poems, especially Sarfaroshi ki Tamanna
3. Took part in the Kakori train robbery of 1925; was an Urdu poet and a friend of Ram Prasad Bismil; hanged on the same day as Bismil
4. One of the chief plotters of the Kakori train robbery; was with Bhagat Singh, Sukhdev and Rajguru in the killing of police officer J P Saunders to avenge Lala Lajpat Rai's death; fought alone when cornered by the police in Allahabad's Alfred Park (now named after him) in 1931, killing himself with his last bullet
5. Led the 1930 raid by Indian revolutionaries on the British armoury at Chittagong in which they seized arms and hoisted the Indian flag; evaded arrest until betrayed and captured in 1933; brutally tortured and hanged in 1934
6. Worked with revolutionaries all over North India and in Bengal; masterminded the attempt to kill Viceroy Lord Hardinge in 1912; could never be caught by the police, and finally escaped to Japan; was instrumental in organising the Indian Independence League and the Indian National Army (INA) before placing them under Subhash Chandra Bose
7. Naga spiritual and political leader; led an anti-British movement in Manipur; arrested in 1932 at age 16 and sentenced to life imprisonment; freed after independence
8. A revolutionary active in northern India; evaded arrest and went abroad, reaching London in 1934; killed Michael O'Dwyer in 1940 to avenge the Jallianwala Bagh massacre of 1919, which O'Dwyer had supported; hanged for this murder
9. Led the all-woman Rani of Jhansi Regiment of the INA; captured in 1945 after the INA's defeat but released later; active in Indian politics after independence

27. North America

North America is the third-largest continent, after Asia and Africa. It has huge mountain ranges, vast plains, hot deserts, tropical rainforests and glaciers. The largest countries are Canada, the USA and Mexico. There are several island groups like the Arctic Archipelago, the West Indies and the Aleutian Islands. Greenland, the world's largest island, is also part of North America. The continent has great mineral wealth, forests, fresh water and fertile soils, making it one of the most prosperous regions in the world.

1. Name these. Use the words given below.

- a. North America's longest river _____
- b. North America's highest peak _____
- c. North America's lowest place _____
- d. World's largest freshwater lake _____
- e. North America's largest land animal _____
- f. Greenland is officially under the rule of _____
- g. The temperate grasslands of North America _____
- h. The US state known as the Lone Star State _____
- i. The canal that joins the Pacific and Atlantic oceans _____

Prairies Panama Canal savanna Mississippi Lake Superior Texas Colorado Lake Erie California
Denmark USA Mount McKinley Death Valley Panama bison Mount Elbert grizzly bear

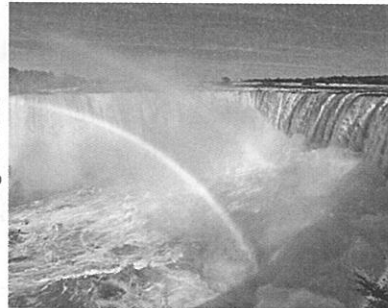
2. Tick if true.

- a. There is no landlocked country in North America.
- b. Most North Americans live in the large cities on the east and west coasts.
- c. Alaska, the largest US state by land area, was purchased from Russia in 1867.
- d. Central American countries are noted for the export of coffee and banana.
- e. The US and Canada are among the world's largest producers of petroleum.
- f. The Bahamas, Cuba, Jamaica, Haiti and Puerto Rico are part of a large island group in the Caribbean Sea known as the West Indies.
- g. The Great Plains in the US and Canada grow large quantities of rice.
- h. The Pan-American Highway is a network connecting North and South America.
- i. The long-legged pronghorn, an animal unique to North America, is the fastest land animal in the continent.

Mount McKinley in the Alaska Range



Niagara Falls



Horseshoe Bend, Colorado River



Death Valley, California



Pronghorns

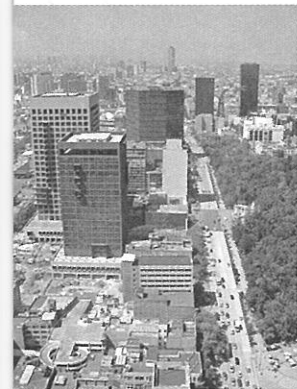




The iconic saguaro cactus of the American deserts



California condor, one of the world's rarest birds



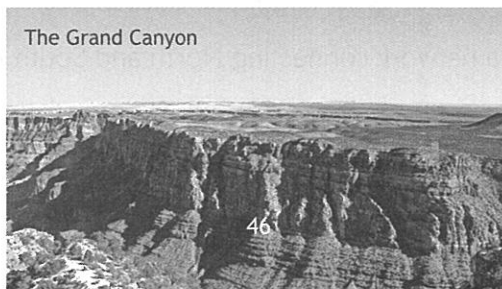
Mexico City, North America's most populous city

3. Tick the correct option or options.

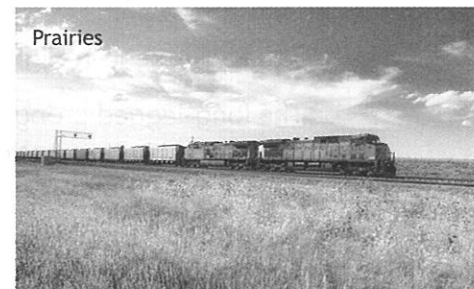
1. North America has both hot and cold deserts. Which of these are hot deserts?
a. Chihuahuan b. Sonoran c. Mojave d. Great Basin
2. The tropical region that joins North and South America contains seven countries: Costa Rica, El Salvador, Guatemala, Belize, Nicaragua, Panama and Honduras. It is known as
a. Latin America b. Central America c. the Caribbeans d. coastal America
3. Which of these rivers has carved channels through layers of ancient rock in the Grand Canyon, Arizona, in the USA?
a. Mississippi b. Potomac c. Rio Grande d. Colorado
4. Home to many indigenous peoples and ancient cultures such as the Olmec, Maya and Aztec, this country is today the world's most populous Spanish-speaking country.
a. Canada b. Mexico c. Panama d. Cuba
5. Name the Canadian province that has French as its provincial official language.
a. Ontario b. Alberta c. Quebec d. Nova Scotia
6. The town called Alert in Canada is the northernmost permanently inhabited place in the world. It lies on the northern end of which island?
a. Baffin b. Ellesmere c. Victoria d. Banks
7. This metal is valued as a precious metal as well as an industrial metal (used in cellphones and solar panels). Mexico is the world's leading producer.
a. platinum b. gold c. silver d. copper
8. Most of this US state lies in Tornado Alley, a region characterised by extreme weather. It has over 50 tornadoes a year on an average. The movie Twister was set in this state.
a. Florida b. Ohio c. Kansas d. Oklahoma
9. The 50th American state is the only one made up of islands, which are tops of volcanic mountains. It is the most isolated populated region on earth. Name the state.
a. Alaska b. Hawaii c. Grenada d. St Kitts
10. North America's largest flying bird has an amazing 10-foot wingspan. With its numbers dwindling to alarming levels, each bird wears a tracking beacon and a number tag in an effort to save this magnificent bird from extinction. Name this bird.
a. albatross b. bald eagle c. golden eagle d. California condor



Tornado



The Grand Canyon



Prairies

28. South America

South America is the fourth-largest continent, stretching from north of the equator almost down to the Antarctic Circle. It is home to the Amazon, the world's largest river, and the Amazon rainforest—the largest and most diverse tropical rainforest on earth. Described by many as the world's lungs, this forest is home to more than half the world's species of plants and animals. The continent also has the longest mountain range (Andes), the driest non-polar desert (Atacama) and the highest capital city (La Paz).

1. Tick the correct option or options.

1. Which of these countries have on their borders Lake Titicaca, South America's largest freshwater lake, considered the world's highest navigable lake?

- a. Peru b. Ecuador c. Chile d. Bolivia

2. With a sizeable population and infrastructure, _____ on the archipelago of Tierra del Fuego is regarded by many as the southernmost city in the world.

- a. Punta Arenas b. Ushuaia c. Rio Grande d. Puerto Williams

3. Which of these animals are found in South America?

- a. llama b. jaguar c. tapir d. anaconda

4. Salar de Uyuni, the world's largest salt flat, was once part of a prehistoric salt lake that covered most of this country.

- a. Chile b. Paraguay c. Bolivia d. Colombia

5. A former British colony, this is the only South American nation with English as the official language.

- a. Suriname b. Guyana c. Ecuador d. Uruguay

6. Among the largest oil-exporting countries, this country is also said to have the world's largest proven oil reserves.

- a. Brazil b. Argentina c. Venezuela d. Colombia

7. In 1982, which country invaded the Falkland Islands, a remote British colony in the South Atlantic, which led to a brief but bitter war?

- a. Brazil b. Chile c. Venezuela d. Argentina

8. The bark of this tree is also known as Jesuit's bark or Peruvian bark, as it was brought to Europe by Jesuit missionaries. Name this medicinal tree.

- a. floss silk b. baobab c. cinchona d. monkey puzzle

9. This South American fish is known for its razor-sharp teeth, relentless bite and huge appetite for meat. Indigenous people use its teeth to make tools.

- a. piranha b. tiger shark c. pacu d. lemon shark



Lake Titicaca



Piranha



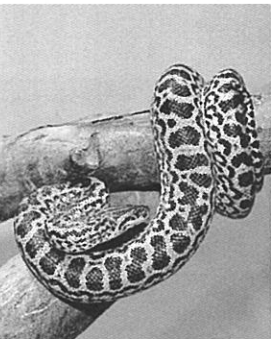
The Andes is the longest mountain range.

Atacama Desert





Golden poison dart frog



Anaconda



Iguazu Falls



The revolutionary icon

This first lady was idolised by her people.



2. Tick the correct option.

- The [savanna / pampas / prairies] are vast grasslands in central Argentina.
- The [Iguazu / Angel / Kaieteur] Falls lie on the border between Brazil and Argentina.
- The nomadic and colourful horsemen and cowhands of the South American grasslands are called [ranchers / gauchos / cowboys].
- One of the most remote inhabited islands in the world, Easter Island is a special territory of [Chile / Peru / Argentina].
- One of the most toxic animals on earth, the [anaconda / tarantula / golden poison dart frog] has enough poison to kill 10 adult humans. The Emberá people of Colombia use its venom to tip their blowgun darts when hunting.
- The [Union of South American Nations / South American Community] was formed in 2008 to promote trade and cooperation among South American countries.

3. Name the famous South Americans with the help of the clues.

- Known as the Liberator, this Venezuelan led revolutions against Spanish rule and helped Bolivia, Colombia, Ecuador and Peru achieve independence. _____
- Latin American literature is noted for a style called magic realism, in which magical or unreal elements are included in realistic fiction. This Colombian Nobel laureate was a famous exponent of this style. _____
- This Argentinian-born revolutionary of the 1950s is regarded as a symbol of anti-imperialism and rebellion. His image by a Cuban photographer is one of the most famous photos in the world. _____
- Born to a poor family, she served as the first lady of Argentina from 1946 until her death in 1952. Her extraordinary life has been portrayed in countless books, films and plays. _____
- This legendary Brazilian racing driver won three F1 world championships before being killed in a crash at the 1994 San Marino Grand Prix in Italy. _____
- This Chilean poet was awarded the Nobel Prize for Literature in 1971. He was once described as 'the greatest poet of the 20th century in any language' by Gabriel García Marquez. _____

Che Guevara Pablo Neruda Paulo Coelho Isabel Peron Ayrton Senna Simon Bolivar
Jose de San Martin Fernando Alonso Eva Peron Gabriel Garcia Marquez Fidel Castro

29. People of the Americas

America is a land of settlers who have migrated from different parts of the world over centuries. In North America, the people are mostly white (European), black (African American) and Asian. The original inhabitants include the Native Americans (American Indians) and Eskimos (Inuit and Yupik). They are believed to be descended from ancient Asiatic peoples from Siberia who crossed the Bering Strait to reach North America thousands of years ago.

South Americans are mostly American Indians (Amerindians), whites (descendants of Spanish and Portuguese) and Africans. In South and Central America, there are large populations of mixed races such as mestizos (descendants of European and American Indians). In the Caribbean, the people are mostly descendants of Africans who were brought here to work on plantations.

Some countries in the Caribbean and South America have sizeable populations of East Indians, who are descendants of migrant workers from the Indian subcontinent brought by the British, the Dutch and the French during colonial times to work on sugar plantations.



A Native American tomahawk



A tepee, used by Native Americans of the Great Plains



Native Americans in traditional attire

Bharrat Jagdeo, former president of Guyana



1. Tick the correct option or options.

1. The Inuit of the North American Arctic have traditionally hunted animals for their meat and skin. Which of these weapons is used to hunt seals, walruses and whales?

- a. tomahawk b. harpoon c. boomerang d. poisoned dart

2. People of British ancestry form the largest group in this country, followed by French-speaking people, reflecting this country's origin from the two founding nations (France and Britain). Name the country.

- a. Canada b. Mexico c. Cuba d. USA

3. A term that broadly refers to the Spanish-speaking culture, peoples or nations, particularly those of Central and South America. It also refers to people of Latin American descent in the US.

- a. hispanic b. mestizo c. creole d. mulatto

4. Brazil is home to the largest Japanese population outside Japan. Which other South American country has a sizeable population of Japanese people? Its president during the 1990s (Alberto Fujimori) was of Japanese origin.

- a. Peru b. Chile c. Ecuador d. Uruguay

5. Which of these countries have sizeable populations of Indian descent?

- a. Guyana b. Suriname c. Jamaica d. Trinidad and Tobago

6. A subject of many books, plays and films, this Native American girl is said to have saved the life of captive Englishman John Smith when her father, a chief, was about to execute him. She later married an Englishman and travelled to England. She was

- a. Queen Ann b. Hononegah c. Pocahontas d. Princess Angeline



Totem poles were carved by indigenous tribes of the Pacific Northwest coast of North America.



Evo Morales, the first indigenous president of Bolivia



A shaman in Peru

Reading the Emancipation Proclamation of Abraham Lincoln, 1863



2. Pick the correct option.

- An individual from the Inuit people is called _____. [an Inuk / a Yupik / an Aleut]
- Cherokee, Crow, Choctaw, Apache and Creek are names of _____ tribes.
[Eskimo / Native American / Amazon]
- The most widely spoken surviving Indian language of America today is _____, the language used by the Incas.
[Guarani / Quechua / Aymara]
- A tribe of the rainforests on the Brazil–Venezuela border, the _____ live in large, circular, communal houses called yanos.
[Yanomami / Kaiapo / Dani]
- A majority of the people in the US state of _____ are Mormons, who practise a strict moral code of conduct in their daily life.
[Alaska / Utah / Oklahoma]
- The American Civil War (1861–65) was fought mainly over the issue of _____.
[slavery / Native American rights / religion]
- During the 1830s, thousands of Native Americans in the US were forced from their homelands to places in present-day Oklahoma. Many died of cold, hunger and disease in what is known as the _____.
[Wounded Knee Massacre / Trail of Tears / Long March]
- Many indigenous people, including the Native Americans and Inuit, practise _____; in which a trained person is believed to communicate with spirits and heal the sick.
[animism / shamanism / spiritualism]

3. Fill in the blanks. Use words given at the bottom of the page.

- Many Native Americans died of diseases like typhoid, smallpox and measles brought by the _____ settlers, to which they had no resistance.
- The largest city of Washington state is named after _____, who adopted a policy of peace with the white settlers and is noted for a speech on ecological responsibility.
- American Indian sculptures carved from large trees that represent stories, important events or legends of the tribes are called _____.
- Areas in the US in which Native American tribes have been located and which are managed by the tribes are called _____.
- Evo Morales from the _____ tribe, became the first indigenous president of Bolivia.
- A key feature of _____, a holiday celebrated in the US on the fourth Thursday in November, is a dinner that includes turkey.

Aymara African totem poles reservations Quechua maypoles Chief Pontiac
Thanksgiving Chief Seattle Columbus Day European ranches

30. Countries, Capitals and More

1. Read the clues and name the countries and their capitals.

- a. Part of the UK; known for its traditions such as bagpipes and kilts; Skara Brae, on the island of Orkney, is Europe's most complete Neolithic village.

Country _____ Capital _____



Skara Brae dates back to 3000-2500 BC.

- b. A federation of seven states; foreigners make up more than three quarters of its population; home to the longest fully automated (driverless) metro network

Country _____ Capital _____

- c. Landlocked country; official language is German; home of legendary composer Mozart; famous for its art, culture and architecture; popular for its ski resorts

Country _____ Capital _____



Austrian Parliament Building

- d. Island in the Caribbean; home of reggae music and music legend Bob Marley; known for its sprinters like Usain Bolt, Asafa Powell and Shelly-Ann Fraser-Pryce

Country _____ Capital _____

- e. Formerly South West Africa, it gained independence from South Africa in 1990; the least densely populated country after Mongolia; home to the Etosha National Park

Country _____ Capital _____



Paella, a dish of rice, vegetables, meat and seafood seasoned with saffron

- f. Only Southeast Asian country not colonised by Europeans; known for its spicy curries, temples and tropical beaches; a tourist hub

Country _____ Capital _____

- g. Home of Golden Age painters Diego Velazquez and El Greco, and modern masters Salvador Dali and Pablo Picasso; paella is a famous dish of this country.

Country _____ Capital _____



A springbok in Etosha National Park, Namibia

- h. Famous for its chocolate and waffles, and its comic makers (Tintin, the Smurfs, etc.); its capital, a hub of international politics, is considered by many as Europe's capital.

Country _____ Capital _____

- i. Fourth-largest island in the world; known for its unique ecology and endemic plant and animal species (found nowhere else); home of the endangered lemur

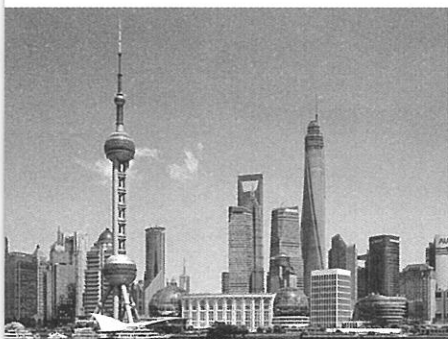
Country _____ Capital _____

European Parliament, Brussels



Austria Jamaica UAE Namibia Thailand Scotland Madagascar Spain the Philippines Belgium
Bangkok Vienna Madrid Edinburgh Kingston Abu Dhabi Windhoek Antananarivo Brussels Manila

2. Solve the crossword.



Oriental Pearl TV Tower, Shanghai

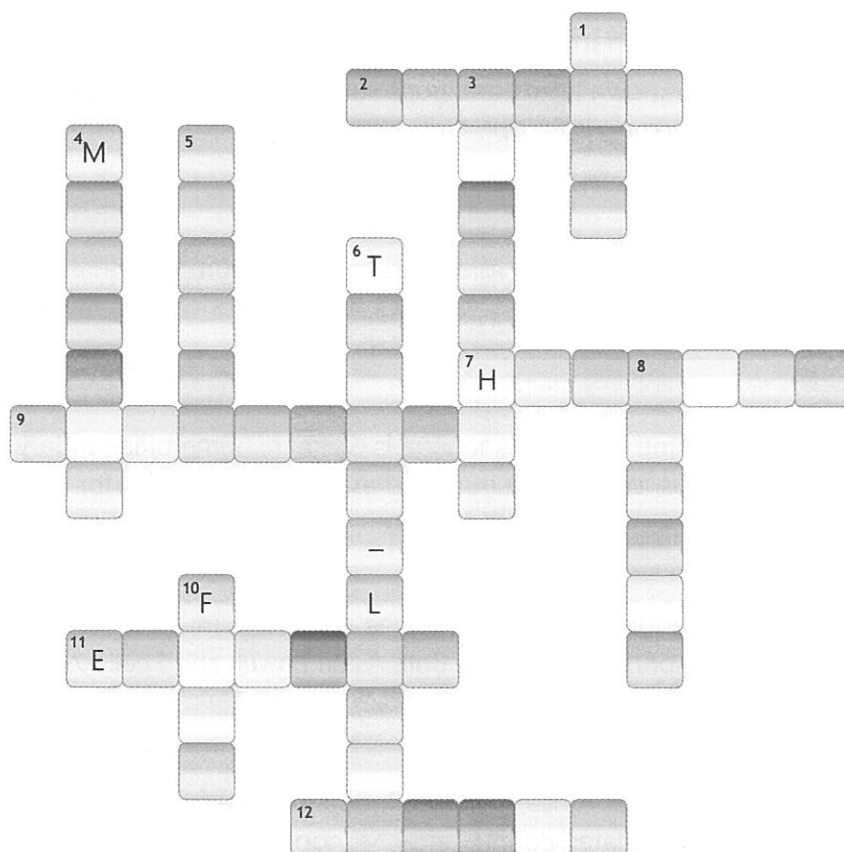


A giraffe woman of the Kayan tribe



A temple in Bali

The Sagrada Familia in Barcelona, a giant basilica that has been under construction since 1882



Down

1. Province of Indonesia known for its beaches and Hindu temples
3. China's leading industrial city, known for its iconic TV tower and maglev train
4. Country known for tribal giraffe women who wear brass rings around their necks as a sign of beauty
5. Lithuania, Latvia and Estonia are together known as _____ states.
6. A country that separated from Indonesia in 2002
8. The country with the longest national anthem, Hymn to Liberty
10. Famous golfer Vijay Singh belongs to this island country; Hindi is one of the official languages here.

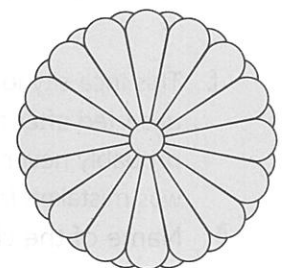
Across

2. Capital of Oman
7. People of this country refer to themselves as Magyar.
9. Spain's second largest city; home to a top football club
11. A country that declared its independence from Ethiopia
12. Capital of Lebanon, known as Paris of the Middle East

31. National Symbols

Tick the correct option or options. Also write the name of the country below the emblems.

1. The extinct bird dodo is the national bird of
a. Madagascar b. Ecuador c. Mauritius d. South Africa
2. The tulip is the national flower of
a. Turkey b. Hungary c. Canada d. the Netherlands
3. Which of these are among the national symbols of England?
a. rose b. lion c. oak d. peacock
4. Besides India, the lotus is the national flower of
a. Vietnam b. Thailand c. Macau d. Bhutan
5. Which of these birds is a national symbol of Argentina, Bolivia, Chile, Colombia, Ecuador and Peru?
a. parakeet b. golden eagle c. black vulture d. Andean condor
6. The Bengal tiger is the national animal of India. Which of these countries have the tiger as their national animal?
a. Bangladesh b. Malaysia c. Myanmar d. South Korea
7. Name the large bird-like creature in Hindu and Buddhist mythology that is the national emblem of Thailand and Indonesia.
a. Airavata b. Hamsa c. Garuda d. Mayura
8. Which large bird of prey is the USA's national bird since 1782, appearing on coins, the \$1 bill, all official seals and the president's flag?
a. bald eagle b. golden eagle c. white eagle d. California condor
9. Name the only country without a national anthem of its own. It uses the national anthem of Greece.
a. Albania b. Monaco c. Cyprus d. Macau
10. A poem written by Francis Scott Key in 1814 became a popular patriotic song. Later known as The Star-Spangled Banner, the poem was adopted in 1931 as the national anthem of
a. the USA b. the UK c. Canada d. Australia
11. This country's rugby team gets its name (the Boks) from the national animal (springbok), while the cricket team (Proteas) is named after the national flower (giant protea). Name this country.
a. South Africa b. Hungary c. Australia d. New Zealand





32. Lost Cities

1. Over the ages, civilisations have arisen, flourished and declined. Many of their cities, once bustling with activity, were abandoned and lay forgotten and ruined until rediscovered centuries later.

Read about some 'lost cities' below and write the name of each by rearranging the given letters.

- a. Once the centre of one of the earliest empires, this city and its great tower, possibly a ziggurat, were described by the Greek historian Herodotus and mentioned in the Bible. The city was also reputed to have terraced gardens counted among the seven wonders of the ancient world.

Name of the city _____ L A B Y N O B

A painting of the Tower of Babel



- b. The ruins of this city had for some time been used as a source of bricks by the local people and by British engineers who were building a railway line between Karachi and Lahore. This city and another of its kind called Mohejo-daro were unearthed in 1921–22.

Name of the city _____ P A P A R A H

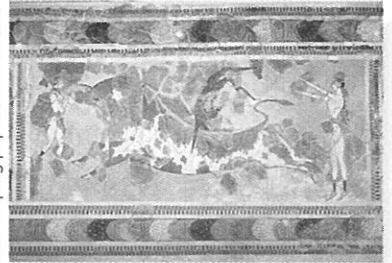
An image of the Trojan Horse



- c. Ancient literature, especially the Greek epic Iliad, mentioned this city as the site of a legendary war involving a beautiful queen Helen and a huge wooden horse. The city was traced to the ruins in a mound called Hisarlik in present-day Turkey. A great treasure and nine cities built at different periods, one over the other, were found here.

Name of the city _____ R O Y T

A mural showing the sport of bull leaping popular at Knossos



- d. King Minos's huge palace and its labyrinth, believed to house the dreaded monster called the Minotaur, were found among the ruins of this city on the island of Crete around AD 1900. The city is regarded by some as the legendary city of Atlantis.

Name of the city _____ S O S K N O S

Temple of the Inscriptions



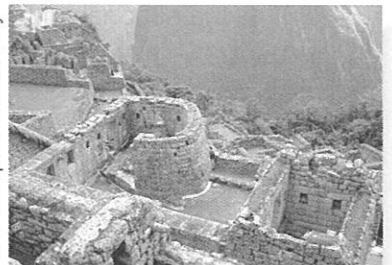
- e. Abandoned and overgrown by forests, this Mayan city in Mexico is now one of the chief sources of information about Maya culture. The Temple of the Inscriptions—a stepped pyramid in this city—houses the tomb of the ruler Pacal the Great.

Name of the city _____ P A N E L Q U E

- f. This Inca city located high in the Andes mountains in Peru was deserted after the Spanish conquest of the Inca. The city was probably never found by the Spanish. It was rediscovered in 1911 and was mistaken for Vilcabamba, the last refuge of the Inca.

Name of the city _____ C H A M U C H I P C U

A sun temple in the Inca city



- g. This Cambodian city, once the capital of the Khmer kingdom with the Bayon Temple at its centre, was abandoned after being conquered and sacked by the Siamese. Though not lost, it fell into ruin and remained hidden in thick vegetation until its restoration was begun at the end of the 19th century.

Name of the city _____ **GANROK MOTH**

The Bayon Temple, now in ruins



- h. This Italian city near modern Naples and the neighbouring city of Herculaneum were destroyed by the eruption of Mount Vesuvius in AD 79. The ruins remained well preserved, buried under volcanic ash for over a thousand years until they were excavated in the 18th century.

Name of the city _____ **IMPOEPI**

The ruins of a city destroyed by the AD 79 eruption of Mt Vesuvius



2. Tick the correct option.

1. This is perhaps the oldest continuously inhabited city. The earliest of the successive settlements found here is more than 10,000 years old. Mentioned in the Bible as the City of Palms, this city in the Jordan valley is now known as
a. Palmyra b. Palenque c. Jericho d. Jerusalem



Excavated ancient settlement in the Jordan valley

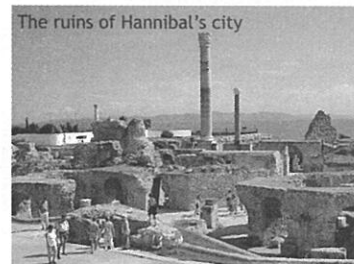
2. Belonging to a pre-Aztec civilisation in Mexico, this city with huge stepped pyramids was considered sacred by the Aztec. The name of the city, meaning 'birthplace of the gods' in the Aztec language, is
a. Copan b. Tikal c. Chichen Itza d. Teotihuacan



The Aztec serpent god known as Quetzalcoatl

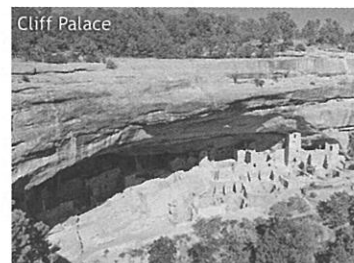
3. The first true smooth-sided pyramid in Egypt was built by King Snefru—the father of King Khufu, who built the Great Pyramid at Giza. Snefru's pyramid, also known as the Red Pyramid is located at
a. Giza b. Luxor c. Dahshur d. Saqqara

4. Built by the Phoenicians, this city in Tunisia became the seat of a culture and civilisation referred to as Punic. It even rivalled Rome. From here, a general named Hannibal famously invaded Italy by crossing the Alps. The city was
a. Carthage b. Tunis c. Darfur d. Timbuktu



The ruins of Hannibal's city

5. Cliff Palace is one of the many cliff dwellings built by an ancient society of Pueblo people (indigenous people of south-western USA). Which national park, in Colorado, USA, was created to protect such dwellings?
a. Black Canyon b. Mesa Verde c. Grand Canyon d. Great Sand Dunes



Cliff Palace

6. The European conquerors of South America heard tales of El Dorado (the Gilded Man), who ritually smeared his body with gold dust and bathed in a lake while his people showered offerings of gold and jewels into the water. El Dorado's city was never found, but many believe the lake to be Lake Guatavita in
a. Ecuador b. Peru c. Colombia d. Venezuela

33. World Heritage Sites

A World Heritage Site (WHS) is a place that is listed by UNESCO (United Nations Educational, Scientific and Cultural Organization) as of special cultural or physical significance. It may be a monument, building, complex, city, forest, mountain, lake, island or desert. Every year, about 25 global sites considered to have outstanding universal value are added to this prestigious list. There are now more than 1,000 such sites. These include the world's most famous places like the Taj Mahal, the Ajanta Caves, the pyramids, Angkor, Machu Picchu and Serengeti.



Bamiyan Buddha,
before its destruction



Tower of London



Virunga National Park



Temple of the Tooth Relic



Darjeeling Himalayan Railway

1. Tick the correct option or options.

- Which of these sites is depicted on the flag of its home country?
a. Angkor b. Borobudur c. Chichen Itza d. Machu Picchu
- The largest national park in Australia, it has been inhabited continuously for more than 40,000 years, from the hunter-gatherers of prehistoric times to the Aboriginal people still living there. Name this park.
a. Uluru b. Kakadu c. Booderee d. Pulu Keeling
- The Bamiyan Valley, famous for its two monumental statues of the standing Buddha (which were destroyed in 2001) carved in the 6th century into the side of a cliff, is in
a. Bangladesh b. Pakistan c. Sri Lanka d. Afghanistan
- Founded by Tuaregs, this desert city in Mali was a major trading post, as well as an intellectual and spiritual centre in the 15th and 16th centuries.
a. Timbuktu b. Fes c. Benghazi d. Kano
- Set up in 1925 as Albert National Park in the D R Congo, Africa's first national park is home to some of the last surviving mountain gorillas. Name this park which is noted for its diverse habitats—swamps, grasslands, snowfields, volcanoes and volcanic plains.
a. Serengeti b. Virunga c. Kruger d. Maasai Mara
- Once the capital of Sri Lanka (then Ceylon) this city is most famous for the Temple of the Tooth Relic, where a tooth believed to be that of Buddha is kept.
a. Jaffna b. Ratnapura c. Kandy d. Anuradhapura
- The Tower of London is among England's most iconic structures. Besides this, which of these World Heritage Sites are in London?
a. Westminster b. Kew Gardens c. Stonehenge d. Greenwich
- Which of these railways are included in the World Heritage list?
a. Semmering Railway, Austria b. Rhaetian Railway, Switzerland–Italy
c. Trans-Siberian Railway, Russia d. Darjeeling Himalayan Railway, India

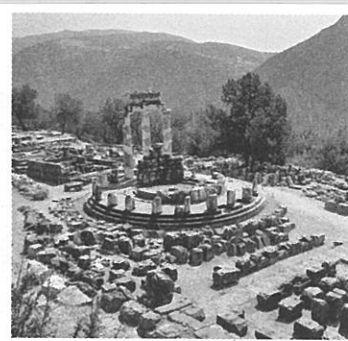
2. Fill in the blanks. Use the words given below.

Yellowstone Tijuca Robben Delphi Genbaku Lascaux Xanadu Spain Persepolis Xi'an Argentina

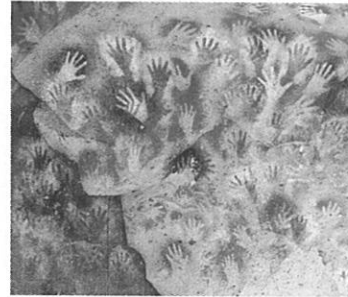
- a. The _____ Cave in France, with its frescos of animals, enigmatic signs and some human figures, estimated to be more than 17,000 years old, has been called the 'Sistine Chapel of Prehistory'.
- b. Along with the Acropolis in Athens, _____ is the best known ancient Greek site in the world. Home to a sanctuary where the oracle of Apollo spoke, it was considered by the ancient Greeks to be the centre of the world.
- c. A notorious prison for over three centuries, _____ Island's most famous inmate was Nelson Mandela, who spent 18 years as a prisoner here.
- d. The _____ National Park in the US has the world's largest concentration of geysers. It is equally known for its wildlife such as grizzly bears, bison and wapitis.
- e. North of the Great Wall of China, _____ is a site that encompasses the remains of Kublai Khan's legendary capital city, designed in 1256.
- f. The _____ Dome is part of the Hiroshima Peace Memorial, a memorial to the people killed in the atomic bombing of Hiroshima.
- g. The _____ National Park, which includes the iconic Christ the Redeemer statue on the Corcovado peak, is among the world's largest urban forests.
- h. Cueva de las Manos (Cave of the Hands) in _____ is famous for its stencilled outlines of human hands made 9,500–13,000 years ago.

3. Tick if true.

- a. Mount Everest lies within the Great Himalayan National Park.
- b. Skara Brae has been called the Scottish Pompeii because of its excellent preservation.
- c. Venice, a city of canals, is spread over more than a hundred small islands.
- d. The historic town of Samarkand, called a crossroad and melting pot of the world's cultures, lies in Pakistan.
- e. The Bhimbetka rock shelters in the foothills of the Vindhya Range consist of some 700 shelters, famous for their prehistoric art.
- f. A scaled replica of the Taj Mahal has been built in Bangladesh.



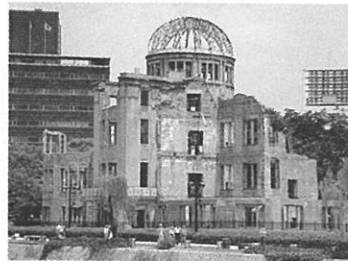
Ruins of Delphi



Cave of the Hands



A hot spring at the Yellowstone



The Hiroshima Peace Memorial

Timbuktu



34. Quiz 3

1. Tick the correct option or options.

1. Who among these is known for his contribution to Indian comics?

- a. Bal Thackeray b. Anant Pai c. Mario Miranda d. R K Laxman

2. Which of these great sprinters is not from the USA?

- a. Carl Lewis b. Usain Bolt c. Jesse Owens d. Flo Jo

3. Which of these forts is still inhabited?

- a. Jaisalmer Fort b. Chittorgarh c. Mehrangarh d. Golconda Fort

4. Which country was called Gold Coast before it got its independence?

- a. Australia b. New Zealand c. Ghana d. New Guinea

5. Which company is the maker of the robot called ASIMO?

- a. Mitsubishi b. Google c. IBM d. Honda

6. Pick the odd one out (it makes something that the others do not):

- a. Apple b. BlackBerry c. Chery d. Lemon

7. Which is the longest mountain range?

- a. Andes b. Himalaya c. Alps d. Rockies

8. Who invented the vacuum flask?

- a. James Dewar b. Thomas Edison c. Samuel Fox d. Michael Faraday

9. Who among these were poets?

- a. Premchand b. Yashpal c. Jaishankar Prasad d. Sumitranandan Pant

10. Indian coins are minted in government mints at

- a. Kolkata b. Mumbai c. Noida d. Hyderabad

11. Who wrote the first encyclopaedia?

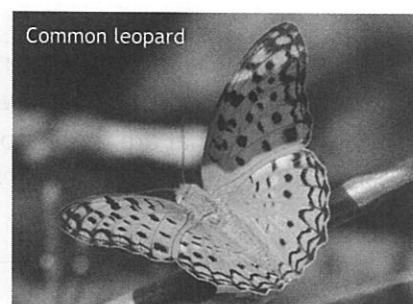
- a. Panini b. Nostradamus c. Al Biruni d. Pliny the Elder

12. Which of these are true for prolonged stay in space, where there is no or low gravity?

- a. The bones of the legs become weak. b. The leg and back muscles weaken.
c. Astronauts become slightly taller. d. Body fluids shift up, causing puffy face.

2. Read the clues, look at the pictures and identify the butterflies.

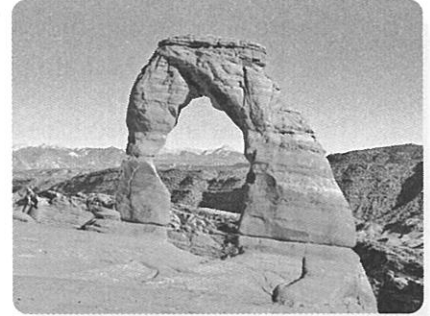
- a. This butterfly shares its name with a spotted big cat. _____
- b. Swallowtail butterflies may have a 'tail' like a swallow's on each hind wing. This one mimics red-bodied butterflies that are not good meals for predators. _____
- c. This swallowtail is also called the green triangle. _____
- d. Unlike most butterflies, the lower surfaces of this butterfly's wings are brightly coloured, which signals to the predators that it is not a good meal. _____
- e. This butterfly has pale blue spots and streaks. _____
- f. Its name suggests its habit of migration. _____
- g. Named after its quick, darting flight. _____
- h. This swallowtail does not have a pronounced 'tail'. It gets its name from its host plant. _____
- i. This common butterfly is also called the African monarch. The hind wings have a spotted black border. _____



35. Natural Monuments

Write the names of these wonderful natural formations.

1. The Arches National Park in Utah, USA, has many strange and beautiful rock formations, including more than 2,000 natural sandstone arches. What is the arch in the picture called?
[Rainbow Bridge Delicate Arch Orange Bridge Marble Arch]



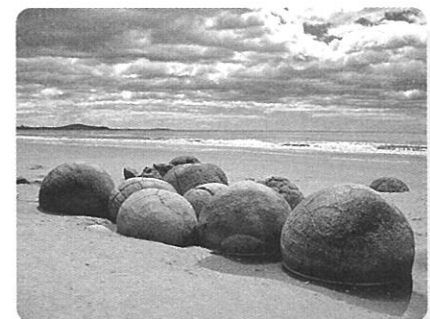
2. This system of caves and tunnels has been carved out of marble cliffs by the action of water. Its location is the General Carrera Lake in Chile. What are these formations called?
[Marble Caves Lake Arch Azure Window Marble Arch]

3. Racetrack Playa, a dry lake in California's Death Valley, has stones that slide on their own, leaving visible tracks on the lake bed. What are these stones called?
[Ghost Stones Devil's Marbles Cannonballs Sailing Stones]

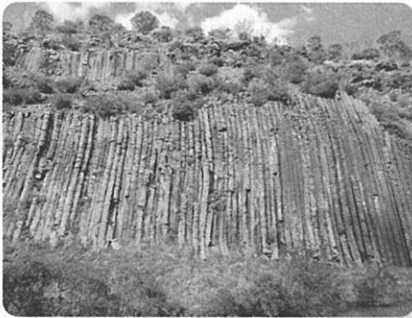


4. The Yehliu Cape in Taiwan has numerous hoodoo stones and mushroom rocks. Some of these have interesting names based on their shape. What are the formations in the picture known as?
[Fairy shoes Sea Tables Beehives Sea Candles]

5. These large, round boulders, named after a nearby village, were formed from sea sediments millions of years ago. They lie on the Koekohe Beach in New Zealand. A Maori legend describes them as the remains of gourds and sweet potatoes washed ashore from the wreck of a mythological canoe. What are the boulders called?
[Koekohe Boulders Moeraki Boulders Aoraki Boulders Gourds]



6. This lake in British Columbia, Canada, is rich in minerals. Much of its water evaporates in summer, leaving pools which have different colours depending on the types of minerals concentrated in them. Thus patches of different colours appear on the lake. Name the lake.
[Marbled Lake Polka Lake Granite Lake Spotted Lake]
-



7. These tall columns of basalt rock stand in an Australian national park named after them. What are they called?
[Devil's Columns Organ Pipes Reed Flutes Rock Pines]
-

8. During certain months, the Cano Cristales River in Colombia turns shades of red, blue, yellow, green and orange. Much of the colour, especially red, comes from a weed growing on the river's bed. Give another name by which this river is known.
[Crystal Rainbow Liquid Rainbow Crystal Ribbon Colour Pool]
-



9. The Svartifoss Waterfall plunging down a wall of basalt columns has inspired the design of Reykjavik's National Theatre. Where would you see this waterfall?
[Norway Switzerland Sweden Iceland]
-

10. The Richat Structure is a circular rock formation surrounded by desert. It lies in Mauritania, and is about 50 km across. It was first noticed by astronauts who saw it from space. Give another name for it.
[Eye of the Sahara Cyclone Eye Bull's Eye Eye of the Tiger]
-



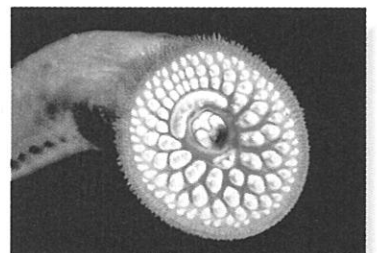
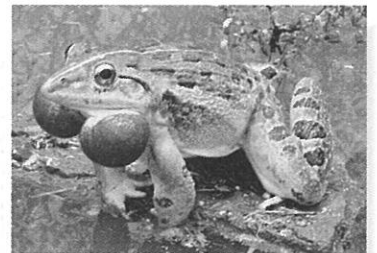
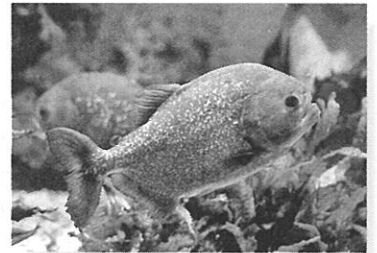
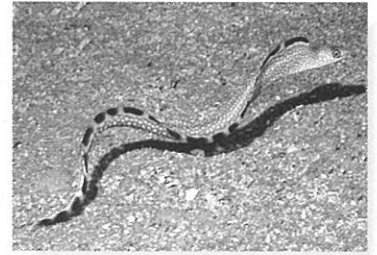
36. Fish and Frogs

Fish are cold-blooded vertebrates that live in water and breathe through gills. Most fish have a skeleton made of bones. But in some, like sharks and rays, the internal skeleton is made of cartilage.

Amphibians are cold-blooded vertebrates that can live both on land and in water. Most amphibians have a larval stage in which they are aquatic and breathe through gills. The adults generally breathe through lungs and a moist skin. Amphibians include frogs, toads and salamanders. Caecilians are amphibians that look like worms.

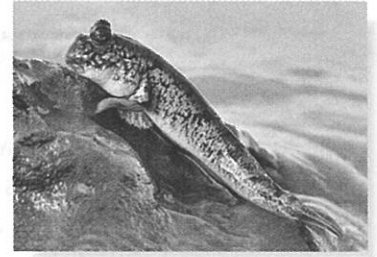
1. Tick the correct option(s). Also, name the animal in the picture.

- Which of these are not actually fish?
a. jellyfish b. moray eels c. sea horses d. lampreys
- The largest fish which also lays the largest egg on land or in water is the
a. blue whale b. bull shark c. whale shark d. hammerhead
- The largest frog in the world weighs around 3 kg. It does not have vocal sacs and cannot croak like other frogs. It is the
a. giant frog b. tiger frog c. African frog d. Goliath frog
- The bombil fish that is a popular dish in western India is also called
a. bhetki b. hilsa c. chingri d. Bombay duck
- Most of these frogs spend their life in trees. They have toe pads that help in climbing. They do not have webbed feet. They are
a. bush frogs b. flying frogs c. golden frogs d. tree frogs
- Salamanders are a group of amphibians that retain their tails as adults. Salamanders that spend most of their time on land are called
a. newts b. sirens c. geckos d. mudskippers
- Pick the fish that are commonly consumed.
a. surmai b. tuna c. mahaseer d. sardine
- This small South American river fish has very sharp teeth and a strong jaw. Its name means scissors in a local Brazilian language. It is the
a. gourami b. candiru c. piranha d. barracuda
- A large frog. The skin of the male frog turns yellow and its vocal sacs, deep blue during the mating season. It is the
a. tree frog b. Malabar toad c. golden frog d. Indian bullfrog

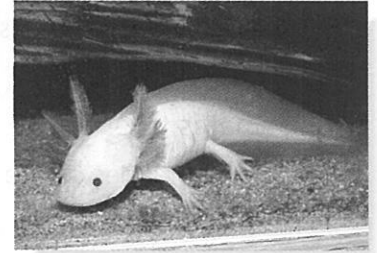


Lampreys are boneless fish that attach themselves to other fish by their mouth (shown in picture).

10. A member of the goby family of small carnivorous fish; it is found in marshes and mudflats and can walk and climb outside water.
a. mudskipper b. lungfish c. flying fish d. mud puppy

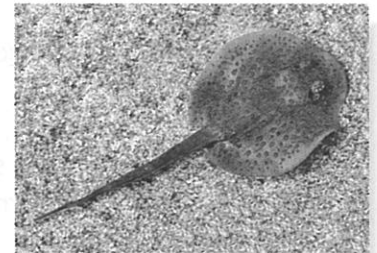


11. Most amphibians have gills in the larval stage. Gills are replaced by lungs in the adult. Pick the amphibians that have gills in the adult form.
a. caecilians b. axolotl c. newt d. mud puppy



12. The Atlantic salmon is born in freshwater, lives in seas as an adult and returns to freshwater to give birth. Which Indian fish does this?
a. tilapia b. hilsa c. pomfret d. magur

13. A flat-bodied fish with a long tail that may have venomous spines; Steve Irwin, a famous wildlife explorer, was killed by one.
a. stingray b. electric eel c. lamprey d. lungfish



14. Which of these fish has a structure like a fishing rod with a glowing flesh bait dangling from it to attract prey?
a. angelfish b. anglerfish c. baitfish d. mackerel

15. The venom of the brightly coloured _____ frogs found in Central and South America was used by the natives to poison hunting weapons.
a. corroboree b. spear tip c. poison dart d. red-eyed



16. A very rare type of fish found in Africa and Indonesia; it was believed to be extinct for many years before being rediscovered in 1938.
a. lungfish b. hagfish c. coelacanth d. cichlid

17. This South American toad has a highly flattened body and large webbed feet. Also called star-fingered toad, it is the
a. Goliath toad b. stonefrog c. bullfrog d. Surinam toad

2. Identify these common aquarium fish.



regal tang gourami Siamese fighter guppy koi angelfish dollar fish rosy barb fire goby molly



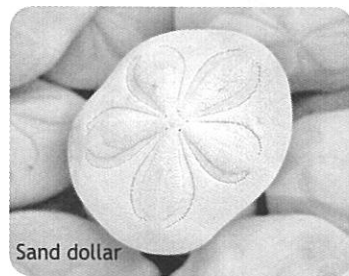
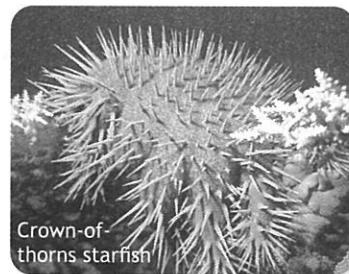
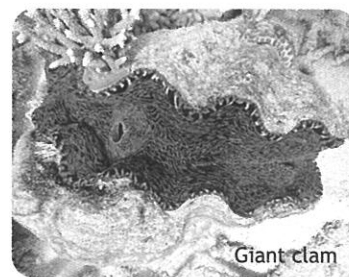
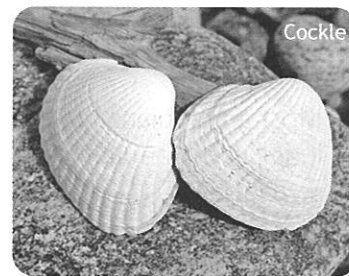
37. Snails, Starfish and Others

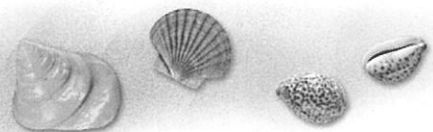
Molluscs are soft-bodied invertebrates that are found both on land and in water. They include animals which may or may not have a shell. Snails, oysters, clams and mussels are examples of shelled molluscs. Squids, octopuses and cuttlefish are molluscs too, but do not have a shell.

Echinoderms are invertebrates that are only found in sea water. Their name means 'spiny-skinned'. Many of them have a body covered by spines. They include the sea stars, sea urchins, sand dollars and sea cucumbers.

1. Tick what is true.

- a. In ancient times cowrie shells were used as currency in many places. ☐
- b. Sea cucumbers may throw out some of their internal organs to startle predators. The organs regrow later. ☐
- c. The giant clam can reach 4 feet in length and weigh more than 200 kg. ☐
- d. A sea cucumber and a sea slug may look similar, but the former is an echinoderm and the latter a mollusc. ☐
- e. Sea lilies are echinoderms that are attached to the sea bottom by means of a stalk. ☐
- f. Apart from oysters, mussels and scallops can also form pearls. ☐
- g. The famous oil and gas company Shell has a logo design that is based on a scallop. ☐
- h. Boring clams are also called shipworms because they can tunnel into the wood of boats, causing great damage. ☐
- i. The crown-of-thorns starfish has many arms and feeds on corals, destroying the coral reef. ☐
- j. The sand dollar is a type of sea urchin that has a very flat body with a five-pointed star pattern on it. ☐
- k. The mouth of a sea urchin is called Aristotle's lantern after the Greek philosopher who first described it. ☐
- l. Many molluscs become poisonous at certain times of the year after consuming poisonous red algae. ☐





2. Unscramble to find the name of the animal.



AES MUCBCRUE

.....



NULIATUS

.....



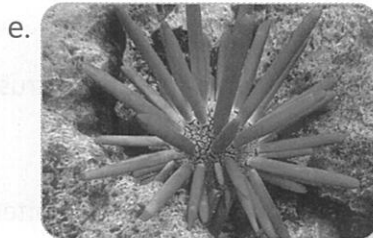
SAE LSUG

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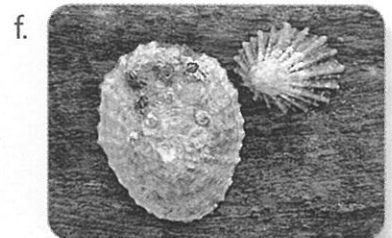
UMSLESS

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EAS UCHRIN

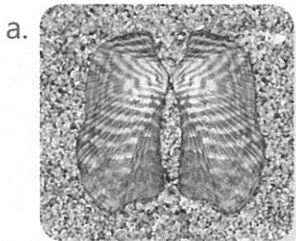
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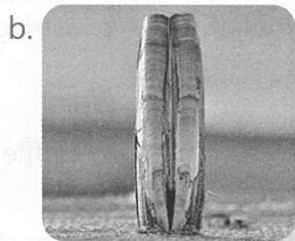
PLIMETS

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3. Identify the shells. Use the options at the bottom.



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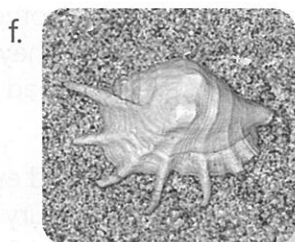
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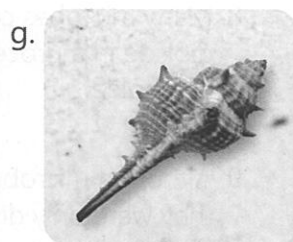
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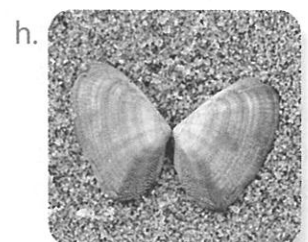
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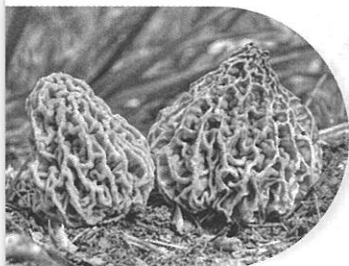
knobbed conch turret shell cowrie wing shell murex scallop tellin shell razor shell

38. Fungi and Microbes

Microbes are tiny organisms which can be seen only under a microscope. Viruses and bacteria are examples of microbes. Some fungi are microbes, while some such as moulds and mushrooms can be seen with the naked eye. Microbes cause many diseases in humans, plants and animals. But not all of them are harmful. Our body has many useful bacteria. Some microbes are used in making food and medicines.

1. Tick the correct option or options.

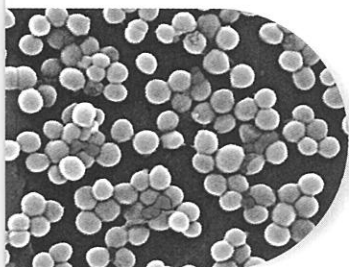
- Many microbes cause diseases. Which of these are caused by bacteria?
a. cholera b. typhoid c. flu d. whooping cough
- Pick the diseases caused by viruses.
a. measles b. rabies c. influenza d. chicken pox
- The powdery fungal growth often seen on fabrics and leather is called
a. scab b. wet rot c. mildew d. canker
- Athlete's foot and ringworm are infections caused by
a. bacteria b. viruses c. worms d. fungi
- Many bacteria and fungi are good for health. These are present in the body and can also be taken as medicines called
a. antibiotics b. probiotics c. astringents d. tonics
- Which of these are edible mushrooms?
a. shiitake b. morel c. truffle d. porcini
- Certain useful bacteria help to make soil more fertile. Some of these are found associated with the roots of
a. beans b. peas c. lentils d. peanuts
- Many microbes convert carbohydrates to other compounds and carbon dioxide in a process called fermentation. They are used in making
a. dhokla b. butter c. bread d. alcohol
- Although microbes such as bacteria existed even before the dinosaurs they were only discovered in the 17th century by the scientist
a. Robert Koch b. Louis Pasteur c. Carl Sagan d. Leeuwenhoek
- Some fungi and bacteria produce antibiotics that are used in medicines. Which of these is an antibiotic obtained from a fungus?
a. paracetamol b. penicillin c. aspirin d. streptomycin



Morels or gucchi are edible mushrooms used in many dishes in India.



The fly agaric mushroom is poisonous but can be eaten after careful preparation.



Bacteria can be of many different shapes. These are spherical bacteria.

Some fungi like yeast carry out useful processes such as fermentation.



2. Identify the fungus from the picture and the clues.

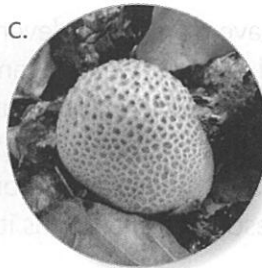
[mould oyster mushroom puffball mushroom truffle fungus bracket fungus button mushroom chanterelle coral fungus]



A popular edible mushroom;
rich in Vitamin B



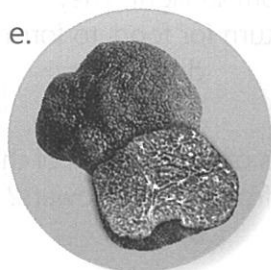
Found growing on tree trunks;
causes rot and decay



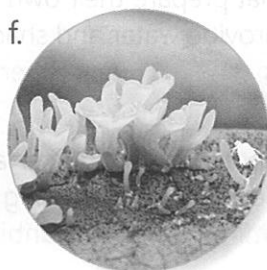
Spongy edible mushrooms that
may grow to very large sizes



Grows on wood; is edible
and is called dhingri in India



Edible fungus that grows
under the ground



Highly branched mushroom;
often brightly coloured



Fuzzy fungal growth that is
seen on stale bread and fruit



Edible mushrooms found
growing on leaf litter

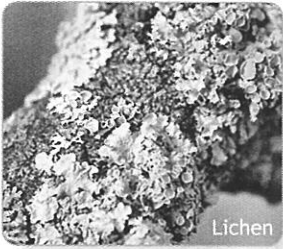
3. Tick what is true.

- a. Viruses have properties of both living and nonliving things. ☐
- b. Our body has ten times more bacterial cells than human cells. ☐
- c. Solan in Himachal Pradesh is called the Mushroom City of India. ☐
- d. Baker's yeast is a microscopic fungus that makes the dough rise. ☐
- e. Mushrooms are a very rich source of Vitamin B and many nutrients. ☐
- f. Bacteria have been found growing under glaciers and in hot springs. ☐
- g. Some ants maintain a fungus garden in their nest as a source of food. ☐
- h. Sweat is odourless, but the bacteria on our skin produce the unpleasant smell. ☐
- i. Tetanus is caused by a microscopic fungus that is found on old and rusted objects. ☐

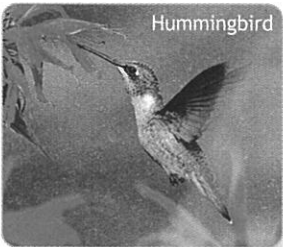


39. The Art of Living

Many plants and animals have developed clever means of surviving in their environments. These include the development of special traits, migration, camouflage, hibernation and mimicry. Some plants and animals have poisonous or foul-tasting chemicals that deter animals from eating them. Thorns and spines in some plants give protection. In a type of adaptation called symbiosis, two different organisms have a relationship that is beneficial either to both or one of them. In the second case, one of them, called a parasite, uses the other's resources and harms it.



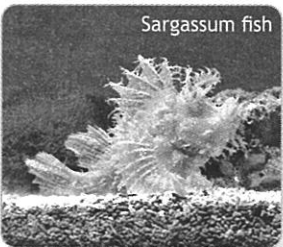
Lichen



Hummingbird



Dodder



Sargassum fish



Thorny devil

1. Tick the correct option or options.

1. Pick the creatures that live as parasites within or on the human body.

- a. head louse b. tapeworm c. leech d. roundworm

2. Algae are small organisms that prepare their own food from sunlight. They associate with fungi, which provide water and shade in return for food, to form

- a. mosses b. ferns c. lichens d. mildews

3. In some birds, the beak is adapted for eating certain types of food. Which of these birds may have a long, slender beak for collecting nectar from tubular flowers?

- a. robin b. hummingbird c. sunbird d. finch

4. Some plants grow on other plants or trees and obtain nourishment from them. Pick the parasitic plants.

- a. dodder b. rafflesia c. mistletoe d. tiger lily

5. Pick the fish that look like seaweeds to help them hide from predators and prey.

- a. sargassum fish b. bamboo shark c. leafy sea dragon d. rock wrasse

6. An Australian lizard has grooves on its body, leading to its mouth. Rain and dew that fall on its body flow to the mouth through the grooves. The lizard is a

- a. water monitor b. beaded dragon c. sand goanna d. thorny devil

7. The pistol shrimp, which is almost blind, digs a tunnel where it lives with the _____ fish. The fish warns the shrimp of any danger.

- a. goby b. puffer c. clown d. cleaner

8. Many plants produce poisonous chemicals so that herbivores do not eat them. Pick the poisonous plants.

- a.  Datura b.  Foxglove c.  Dumb cane d.  Yew

2. Fill in.

- a. They huddle in large groups to keep warm. Those on the outside move inwards at regular intervals so that they are not exposed to the cold winds for too long.
- b. Some types of these plants have flowers that resemble a female bee in order to attract male bees for pollination.
- c. These arthropods are famous for their migration in Christmas Island, Australia. Large groups travel from the forests to the coast to breed.
- d. This type of plant grows in swamps such as the Sundarbans. Some of them have breathing roots that stick out of the ground and take in oxygen.
- e. This compound gives coffee its unique taste but paralyses insects. It was developed by the plant to stop insects from eating it.
- f. This animal attaches sea anemones to the shell in which it lives. The anemones give it protection and in return are carried to fresh feeding waters.
- g. This marine animal can change colour to match its surroundings. When in danger it shoots out black clouds of ink to confuse its attacker.
- h. This lizard, found in Mexico and south-western USA, wedges itself under rocks and inflates itself so that predators cannot extract it from there.
- i. Welwitschia is a plant that can live for more than 1,000 years. It obtains water from mists and dew. It is found in the
- j. This plant produces an oil that fuels forest fires which kill off most of its competitors. Its seeds germinate only after being exposed to fire.



Hermit crab



Chuckwalla



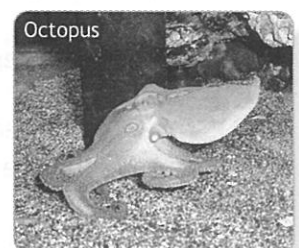
Breathing roots



Coffee plant



Welwitschia



Octopus

eucalyptus baobab sea anemone octopus orchids theobromine red crabs
hermit crab fiddler crabs mangrove chuckwalla Atacama Desert polar bears
Thar Desert nilgai little penguins Namib Desert emperor penguins caffeine

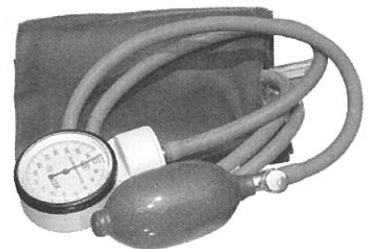
40. Quiz 4

1. The Railways Quiz. Tick the correct option or options.

1. The arm of an electric locomotive that picks up electricity from overhead lines is called a
 - a. hook
 - b. lead
 - c. electrograph
 - d. pantograph
2. Making up or dividing trains in sidings is called
 - a. siding up
 - b. shunting
 - c. rolling
 - d. training
3. A train in which multiple carriages have electric motors, so no locomotive is required:
 - a. loco-free
 - b. electric train
 - c. EMU
 - d. electric bogie
4. Coarse stones used to form the bed for rail tracks is called
 - a. gravel
 - b. cinder
 - c. ballast
 - d. rail stones
5. A metal bar that joins the ends of rails is called
 - a. joining bar
 - b. fish bar
 - c. joining plate
 - d. fish plate
6. The assembly of wheels at each end of a coach, pivoted to turn on curves, is called
 - a. undercarriage
 - b. bogie
 - c. pivot wheels
 - d. end wheels
7. Some railways have a third rail
 - a. for stability
 - b. at level crossings
 - c. for electricity
 - d. for changing tracks

2. The Medical Equipment Quiz. Fill in the blanks.

- a. A sphygmomanometer measures _____.
- b. A stadiometer measures human _____.
- c. A defibrillator restarts _____.
- d. An ophthalmoscope is used to look at structures behind the _____ of the eye.
- e. A ventilator helps a critically ill patient _____.
- f. A dialyser removes waste from the _____.
- g. An aural thermometer measures the body temperature by measuring the temperature of the _____.
- h. You will find cowhorn forceps in the clinic of a _____.



3. Label the pictures. Choose from the options given at the bottom of the page.



monitor lizard ET volleyball frog hockey rugby snake Sarojini Naidu shell sprouts garden lizard Golda Meir coconuts
 Kalpana Chawla turtle palm staircase betel nut lacrosse hazelnuts Amelia Earhart salamander matches handball wheat
 barley coffee beans Margaret Thatcher American football Indra Nooyi acorns Sunita Williams mushrooms Angela Merkel

41. Earth Matters

1. Tick the correct option or options.

1. Carbon dioxide, methane, nitrous oxide and fluorinated gases such as sulphur hexafluoride are collectively referred to as ____ gases.
- a. inert b. waste c. greenhouse d. industrial

2. Which of these countries is the largest emitter of carbon dioxide?

- a. USA b. China c. India d. Russia

3. By 2100, average global temperatures are expected to rise by 2°C and consequently, the sea level by about 50 cm from the present level. The rise in temperature will lead to an increase in the sea level by

- a. melting mountain glaciers b. expanding ocean water
c. causing ice sheets of Antarctica and Greenland to melt and slide into the oceans

4. The total amount of greenhouse gases (GHGs) produced as a result of human activities, expressed in equivalent tons of carbon dioxide, helps us understand the impact of our behaviour on global warming. It is known as

- a. carbon budget b. eco-mapping c. carbon credit d. carbon footprint

5. Earlier known as the Bharatpur Bird Sanctuary, this World Heritage Site is one of the richest bird areas in the world, and was host to the rare Siberian cranes in winter.

- a. Sultanpur National Park b. Ranganthittu Bird Sanctuary
c. Salim Ali Bird Sanctuary d. Keoladeo National Park

6. The main character in the animated film Finding Nemo is a member of a species of fish that may become endangered because of threats from global warming and ocean acidification. Name this fish.

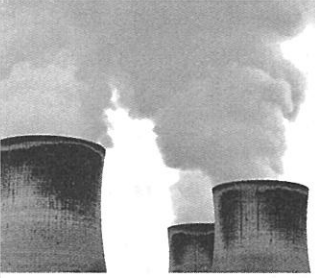
- a. clownfish b. blowfish c. catfish d. goldfish

7. Name the toxic substance that caused thousands of deaths, injuries and permanent disablement in the Bhopal gas tragedy on the night of 2–3 December 1984, considered the world's worst industrial disaster.

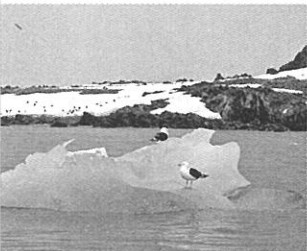
- a. methane b. bromine c. formaldehyde d. methyl isocyanate

8. Name the climate-change agreement aimed at stabilising GHG levels in the atmosphere, named after the city in which its framework was agreed upon in 1997. It is the world's only legally binding global emissions treaty.

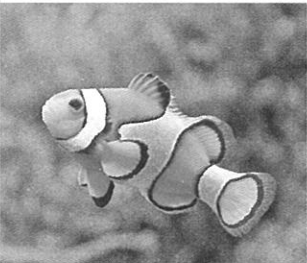
- a. Vienna Convention b. Montreal Protocol
c. Kyoto Protocol d. Rio Declaration



Power plants are the biggest source of GHGs.



Ice sheets of Greenland and Antarctica have begun to melt.



This beautiful fish may become endangered.

Victims of the Bhopal gas tragedy demand justice.



2. Pick the correct option.

- a. The planet whose atmosphere is mainly made up of carbon dioxide due to excessive greenhouse effect ____ [Jupiter / Venus / Mercury]
- b. An area of space in which a planet is just the right distance from its parent star so that it is neither too hot nor too cold. The earth lies in such a zone. ____ [interstellar zone / biosphere / Goldilocks zone]
- c. A term that refers to the human impact on the environment ____ [anthropogenic / greenhouse effect / hominid]
- d. The city in the former USSR (and now in Ukraine) that in 1986 was the site of the worst nuclear power plant accident ____ [Chernobyl / Kiev / Riga]
- e. The city that hosted the landmark UN Conference on Environment and Development in 1992 ____ [Kyoto / Lima / Rio de Janeiro]
- f. The source of the majority of atmospheric oxygen ____ [marine plants / rainforests / boreal forests]
- g. The oil tanker that spilled millions of litres of oil in Alaska's Prince William Sound in 1989, causing one of the worst man-made environmental disasters ____ [MT Haven / Sea Star / Exxon Valdez]



A memorial to the workers who contained the disaster at Chernobyl



High pressure and hot water treatment being used to clean up the Exxon Valdez oil spill

3. Name these environmental activists. Use the names at the bottom.

- a. Former prime minister of Norway whose 1987 UN report Our Common Future laid the ground for the 1992 Earth Summit _____
- b. One of the most prominent and respected environmentalists in India; founder of the Centre for Science and Environment _____
- c. A former NASA scientist best known for his Gaia theory, according to which the earth's biosphere works as a single living organism _____
- d. American zoologist who studied gorillas for 18 years in the mountains of Rwanda; believed to have been murdered by poachers _____
- e. Social activist and founder of the Narmada Bachao Andolan, which campaigns for the rights of people displaced by large dams along the Narmada _____



Gro Harlem Brundtland



Medha Patkar



James Lovelock

James Lovelock Gro Harlem Brundtland Medha Patkar Dian Fossey Anil Agarwal Sunita Narain Carl Sagan Rachel Carson

42. How? Why? What?

Tick the correct option or options.



1. What form of simple machine is used while opening the lid of a can with a spoon?
a. corkscrew b. can opener c. bottle opener d. lever
2. Which of these are used in a block-and-tackle system?
a. levers b. pulleys c. wedges d. inclined planes
3. Where is the solar plexus (a network of nerves) located in our body?
a. spinal cord b. brain c. neck d. abdomen
4. For which of these can you say: like repel, unlike attract?
a. electric charges b. cell's terminals c. magnetic poles d. planets and moons



5. What do the Latin names natrium and stannum refer to?
a. nature and stars b. nation and state
c. sodium and tin d. nitrogen and strontium
6. Which of these conversions are possible?
a. sound to electricity b. electricity to sound
c. light to electricity d. electricity to chemical energy
7. Why does a liquid rise in a drinking straw on sucking?
a. The liquid gets heated and rises. b. Capillary action increases.
c. The pressure on the liquid outside the straw increases.
d. The pressure on the liquid inside the straw decreases.



8. What makes it possible for raindrops to create rainbows?
a. prisms inside raindrops b. a mix of reflection and refraction
c. total internal reflection d. 3–4 reflections inside raindrops

9. You see vapours over hot water as well as around the ice in a freezer. Which of the following statements are true?
a. Both vapours are water in its gaseous state.
b. Only the vapour above boiling water is water in its gaseous state.
c. The vapour above boiling water rises, while that around ice sinks.
d. The vapour around ice is made up of condensed water particles.



10. Sir Isaac Newton noted that when an apple falls from a tree, it falls straight towards the ground. What did this lead him to think about?
a. gravitational force between bodies b. gravitational pull of large planets
c. laws governing falling bodies d. laws of motion

11. How does a refrigerator work?

- a. The ice in the freezer cools the fridge.
- b. A coolant in gas form circulates inside the fridge, the cool gas cooling the fridge.
- c. Liquid coolant evaporates inside the fridge, and the evaporation cools the fridge.
- d. Cold water pumped by the compressor cools the fridge.



12. How does a microwave oven heat food?

- a. The water in the food absorbs the microwave radiation and heats up.
- b. The microwave radiation is hot and it heats the food.
- c. The microwave radiation heats up the vessel in which the food is placed.
- d. The air around the rotating plate gets heated by microwaves and heats the food.

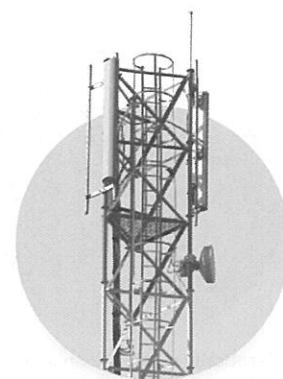


13. Cell phones are called so because an area such as a city is divided into small areas called cells, each with its own cell tower. Signals to and from a cell phone are handled by the nearest cell tower. How is this better than using a single powerful tower?

- a. The power required to send signals from the phones is less.
- b. The area of coverage can be increased easily by increasing cells.
- c. Small cells instead of a single tower increases privacy.
- d. Cells with no users within its area can be removed.

14. While thinking about a way to find whether the king's crown was made of pure gold or not, Archimedes stepped into a filled bath, and noticed the water rise. He ran out shouting "Eureka! Eureka!" meaning "I have found it". What he had found is now called Archimedes' principle, which tells us about

- a. how to find the purity of gold
- b. the principles of bathtub design
- c. the upward force experienced by bodies immersed in water
- d. the volume of water displaced by objects immersed in water

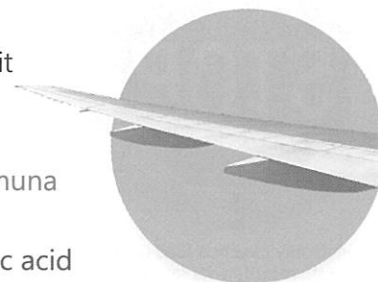


15. Daniel Bernoulli, a Swiss scientist, stated that as the speed of a fluid decreases, the pressure exerted by it increases. This is called Bernoulli's principle, which explains why

- a. the thatched roof of a hut blows off in a storm
- b. a person on the edge of a platform gets pulled in by a passing express train
- c. a plane's wing is shaped to make the air flowing below it slower than that above it

16. A particular mixture of liquids is called aqua regia, meaning 'royal water'. Why is it named so, and what are its components?

- a. Kings used to drink it. Components: distilled water and spring water
- b. Kings used to bathe in it. Components: the waters of the Ganga and the Yamuna
- c. Was used in royal gardens. Components: distilled water and rainwater
- d. Dissolves noble elements like gold. Components: hydrochloric acid and nitric acid

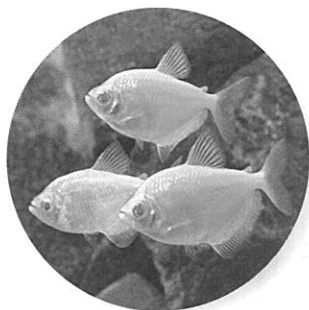


43. The Cell's Code

Have you ever wondered what determines the colour of your hair and eyes or even the number of limbs you have? Why do you not have eight arms like an octopus or a long neck like a giraffe?

Every organism is made up of tiny cells. Within each of these cells are chromosome pairs (one inherited from each parent) that contain our genes. Genes are the units that determine all our characteristics. They are made up of deoxyribonucleic acid (DNA). Errors or abnormalities in the DNA may lead to genetic diseases such as progeria, Down syndrome, sickle cell anaemia and cancer.

The study of genes and how they are inherited is called genetics. Genetics can help us understand diseases such as cancer and develop cures for them. It can also be used to make more productive crops to feed the growing population. Many people protest against Genetically Modified Organisms (GMOs) and believe that they are unsafe.



The first genetically modified pets to be sold were the GloFish.



Genetically modified form of rice to reduce Vitamin A deficiency



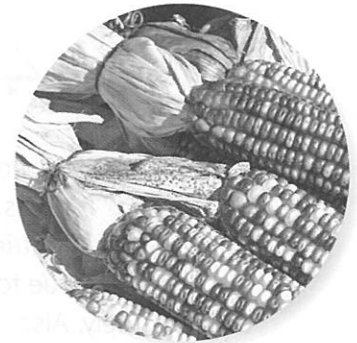
Genetically modified food faces protests regarding its safety.

1. Tick the correct option or options.

1. Genetic studies have established that people all over the world have descended from early humans who lived in and later migrated out of the continent of
a. Asia b. Australia c. Africa d. South America
2. Genetic diseases may be cured by replacing the defective genes with corrected ones. This is called
a. genealogy b. gene correction c. gene therapy d. genomics
3. A company that has faced massive protests regarding seeds which grow into crops whose seeds fail to germinate
a. Celgene b. Monsanto c. Amgen d. Genentech
4. Many crops such as cotton and brinjal are being genetically modified to make them resistant to pests by inserting a bacterial gene into them. They are identified by putting ____ before their name.
a. Bt b. GR c. Pr d. HYV
5. A genetic disease in which a child ages rapidly and begins to resemble an older person; Amitabh Bachchan played a child who suffered from this disorder in Paa.
a. progeria b. dyslexia c. amnesia d. Alzheimer's
6. It is a variety of genetically modified rice that aims to overcome Vitamin A deficiency in women and children in poor countries.
a. yellow rice b. vita rice c. brown rice d. golden rice
7. Some diseases arise due to mutations or errors in the genes. The causes may be
a. UV rays b. smoking c. X rays d. dirty water
8. The first genetically engineered drug that was approved; used to treat diabetes:
a. glucagon b. glycimax c. insulin d. glycogen

2. Tick if true.

- a. Chimpanzees, bonobos and gorillas share a large number of genes with humans and are closely related to us.
- b. Features such as curly hair are determined by a person's genes.
- c. Colour blindness, in which a person cannot see one or more colours properly, is a genetic disorder and can be inherited from one's parents.
- d. The Deepwater Horizon oil spill in the Gulf of Mexico is being cleaned up by naturally-occurring microbes.
- e. Just like human fingerprints, special segments of DNA can be used to identify a person by a process called DNA fingerprinting.
- f. Scientists are trying to develop a genetically modified banana which produces weak toxins and can be used as a vaccine.
- g. Pharming involves the use of genetic engineering to produce pharmaceuticals in the milk of animals or in plant parts.
- h. Flavr Savr tomato, the first genetically modified crop to be sold, stayed firm longer after ripening and was easier to transport.



Each kernel of corn is a different seed and has different genes. This is why the same cob can have different-coloured kernels.



Some people have attached earlobes. This is controlled by their genes.

3. Genetics is one of the fastest growing areas of research. Many famous people have contributed to this field. Fill in the blanks.

[mouse James Watson Gregor Mendel Har Gobind Khorana
Human Genome Project Francis Crick Cloning Project sheep]

- a. _____ was an Austrian monk whose famous experiments with the pea plant gave us the Laws of Inheritance. He is known as the Father of Genetics.
- b. _____ and _____ discovered the double helical structure of DNA. Along with Maurice Wilkins they received the Nobel Prize in Medicine in 1962.
- c. In 2003, the _____ headed by Francis Collins was successful in obtaining the nearly 3 billion letters that make up the sequence of all the genes in humans.
- d. In 1996, scientists at the Roslin Institute in Scotland announced the birth of the first animal cloned from an adult cell. This animal, named Dolly, was a _____.
- e. Awarded the Nobel Prize in 1968, _____ cracked the code that allowed proteins to be made from nucleic acids.



The stuffed body of Dolly at a museum in Scotland.

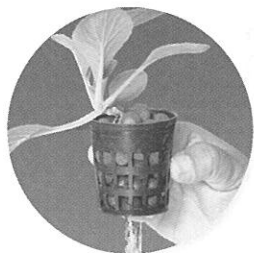


The Father of Genetics

44. Do Plants Need Soil?

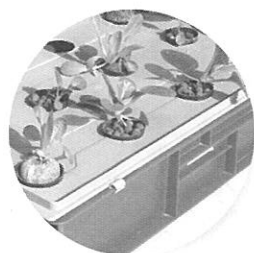
What do plants need in order to grow? Air, water and nutrients. What is the role of soil in the growth of plants then? It holds the plant steady, and it is from the soil that the roots get nutrients and water. Some soils are rich in nutrients, so farmers need to add little or no nutrients in the form of fertilisers or manure. But this is not true for all soils. In addition, some soils are compact (not loose), which does not allow roots to grow freely. Also, when we water the plants, a large fraction goes waste in wetting the soil or is lost through evaporation. A very small fraction is actually taken up by the roots. Soil is home to a number of organisms. Some of them help the plants, but there are others that cause plant diseases. Given all this, scientists concluded that plants can be grown without soil if we can ensure that the roots get nutrients and water, and we provide a medium or mechanism to hold the plant. In many countries commercial soilless farming is a huge success. The advantages of soilless farming are: greater yield, a huge reduction in water requirements, healthier, disease-free plants so no need for pesticides, indoor cultivation possible, and so on. There are various methods of soilless farming. But the main focus of these methods is to ensure that the roots grow without much hindrance, and they have access to water, nutrients and air.

Tick the correct option or options.



Clay pellets hold the plant. They also absorb water and nutrients and release them slowly. The 'net pot' allows roots to spread out.

- Some of the materials used as a substitute for soil are coco peat, vermiculite and perlite. Soil substitutes are nutrientless. So what properties make them suitable for soilless farming?
 - loose structure with air pockets, allowing roots to grow freely
 - absorbs water and nutrients, and releases them slowly, so no need for frequent watering
 - free from disease-causing organisms
 - cheaper than soil
- Soil substitutes vermiculite and perlite are minerals, whereas coco peat is made from
 - peat
 - cocoa shells
 - coconut husk
 - rice husk
- The main nutrients added in small quantities in soilless farming are salts containing
 - nitrogen
 - potassium
 - phosphorus
 - iron
- Plants can be grown with their roots submerged in nutrient-rich water. The method is called
 - water agriculture
 - water farming
 - aquaponics
 - hydroponics
- The method in which roots are submerged in a water tank that has fish, whose waste provides the nutrients for the plants, is called
 - pisciculture
 - aquaponics
 - fishoponics
 - fishy system
- The method in which plants are suspended in air and the roots are periodically misted with nutrients (similar to the way one sprays deodorant or perfume aerosols) is called
 - aeroponics
 - aerosolponics
 - spray farming
 - misticulture
- Soilless farming like aeroponics has space-exploration uses (e.g., on space stations) because
 - soil is a heavy load to carry to space
 - water requirement is very low
 - of greater yield and less diseases
 - watering is a problem in low or no gravity



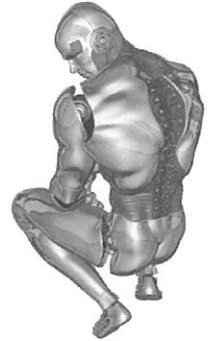
A hydroponics tank in which plants placed in net pots are suspended through the holes



Mass of roots of a plant grown in a soilless system

45. Tech Matters

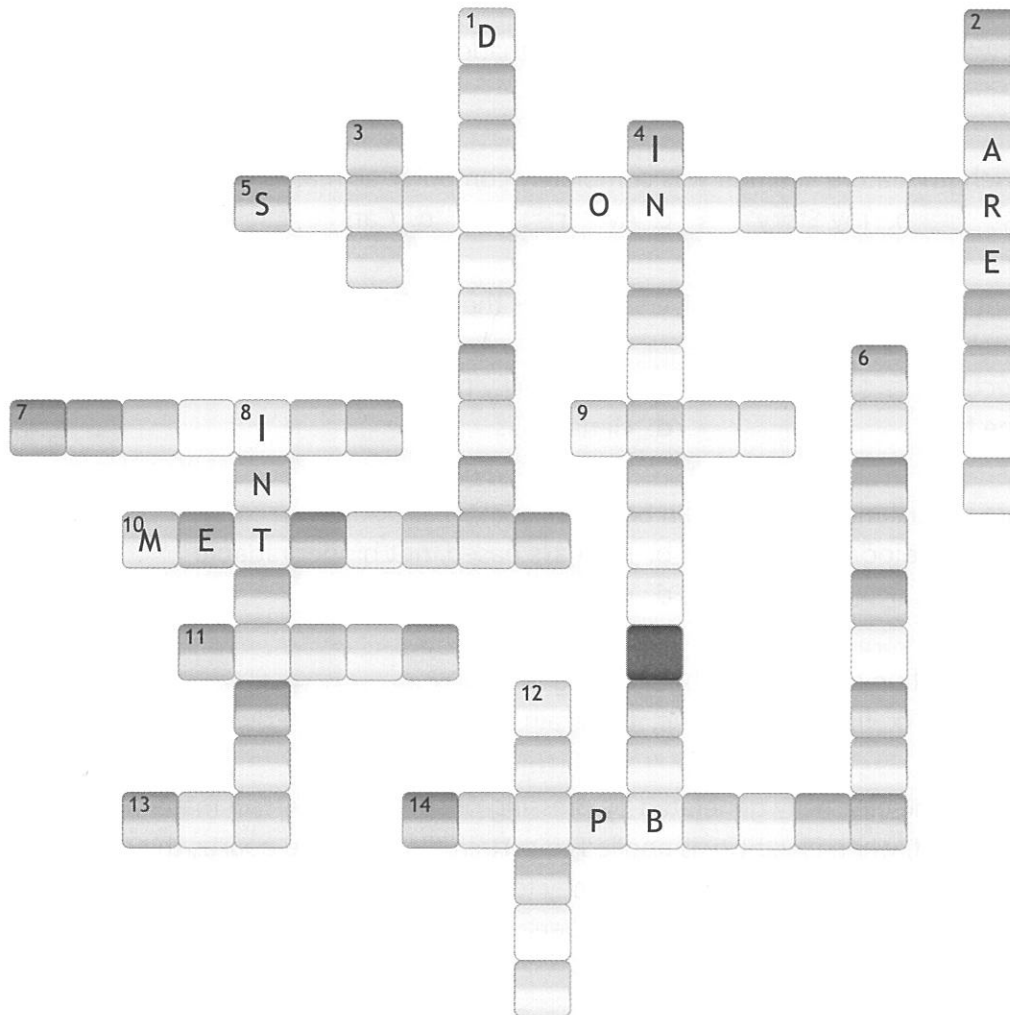
1. Tick the correct option or options.



1. The Newton was a PDA (personal digital assistant) made by
 - a. Sony
 - b. Amazon
 - c. Palm
 - d. Apple
2. The first full-length feature film that was completely computer-animated was
 - a. Star Wars
 - b. Toy Story
 - c. Avatar
 - d. Cars
3. An experimental robot at Stanford University mimics the gecko. Called the Stickybot, it demonstrates how a robot can
 - a. catch insects
 - b. throw sticky bombs
 - c. stick to the floor
 - d. climb walls
4. Bioplastics are special materials that can be
 - a. biomass based, biodegradable
 - b. biomass based, not biodegradable
 - c. used only for artificial limbs
 - d. used only in biology labs
5. Biometric identification can be done by scanning
 - a. the iris
 - b. fingerprints
 - c. the brain
 - d. the lips
6. Piezoelectricity is the electricity generated by pressing or squeezing certain materials. In the reverse effect, when electricity is applied to certain materials like quartz, they vibrate. These two effects are used independently to make
 - a. microphones
 - b. buzzers
 - c. speakers
 - d. quartz watches
7. The thinnest material that exists is _____, a one-atom-thick layer of carbon.
 - a. nanocarbon
 - b. nanotube
 - c. graphene
 - d. graphite
8. What is DNS (Domain Name System)?
 - a. naming rules for websites
 - b. a system of generating IP addresses
 - c. a system that translates an easy-to-remember domain name such as google.com into a computer-friendly IP address such as 74.125.236.167
9. What is Deep Net?
 - a. a network for submarines
 - b. part of the Web that does not come up in searches
 - c. web pages prepared by people with a deep understanding of the subject
10. What happens when you enter mailto:friend@company.com in the address bar of a browser?
 - a. You get an error message.
 - b. An email compose window opens.
 - c. The mailto site opens.
 - d. The company.com site opens.



2. Complete the crossword.

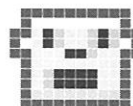
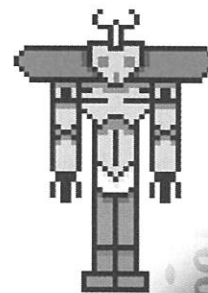
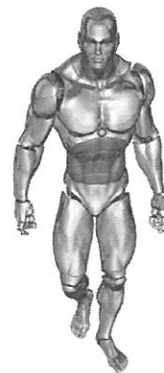


Across

5. a conductor in a state in which it has no resistance
7. study of systems that work like living things or their parts
9. a website that allows users to change the contents of the site
10. data about other data
11. a script; it automates the steps involved in common tasks
13. an automated program running on the Net; a robot on the Net
14. a temporary storage area for copied data

Down

1. collect and write fragmented bits of a file at a single location
2. a software that is free only for the trial period
3. short form of MPEG Audio Layer III
4. another name for the Deep Web
6. an image may look _____, or blocky, when enlarged
8. a private network within an organisation
12. a program that crawls the Web to index sites



46. Mysteries Solved and Unsolved

Write the names of these mysterious phenomena.

[halo mirage crop circle aurora borealis Brocken spectre aurora australis Nazca lines fairy circle]

1. • Light rays bend when they pass through layers of air that vary in density due to their different temperatures. This forms upside-down images of objects.
 - The inverted image looks like the reflection of the object in water. This is common on highways and in hot deserts.
 - Often, an image of the sky is formed as a coloured patch on the ground in the distance. This image looks like water on the ground.

2. • Natural display of dancing curtains of coloured lights in the sky
 - Seen mostly in regions close to the Arctic and Antarctic Circles; called northern lights if seen in the Arctic region and southern lights if seen in the Antarctic
 - Caused by charged particles coming from the sun, entering the earth's atmosphere and colliding with gas atoms in the upper reaches of the atmosphere

a. Northern lights: _____

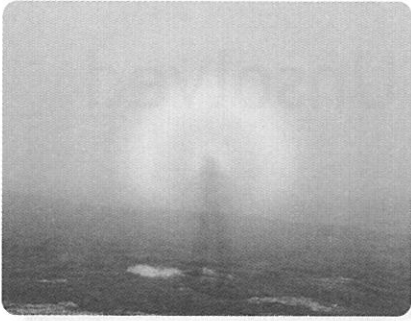
b. Southern lights: _____

3. • Formed when ice crystals in the atmosphere reflect, refract and split up light; many types, depending on how the crystals are oriented
 - The circular type looks like a ring around the sun or the moon.
 - Not to be confused with a corona, which appears as a multicoloured disc around the sun or the moon

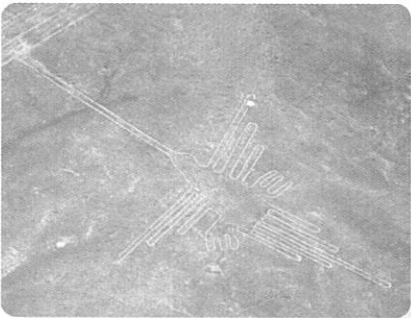


Corona around the moon

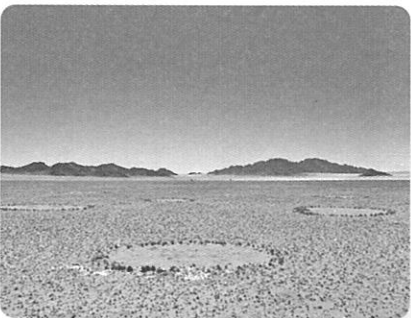




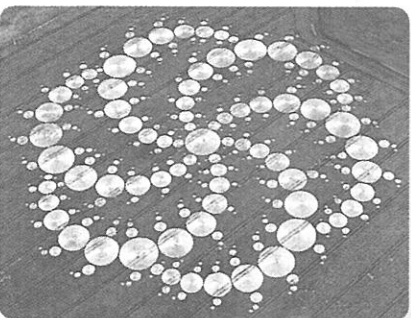
4. • A huge shadowy figure surrounded by a halo of coloured rings sometimes looms up in front, startling climbers on foggy mountainsides.
 - May be seen when the sun shines from behind an observer looking down from a mountainside and casts his shadow onto the clouds or fog below him; the coloured rings are produced by the interaction of light with the water droplets in the cloud.
 - Sometimes seen from aeroplanes; especially common on the Brocken, a peak in the Harz Mountains in Germany



5. • Motifs on the ground, hundreds of them, in an arid region of southern Peru; they range from straight lines to geometric shapes and figures of birds, a monkey, a spider and others.
 - So large that they can be seen only from a height such as the tops of the surrounding hills; made by digging shallow ditches
 - No one knows for sure who made them and why. A similar example is the Atacama Giant (see figure above) in Chile's Atacama Desert. This is the largest prehistoric humanoid figure in the world.



6. • Circular patches of bare land, each surrounded by a ring of lush grass appear in the arid grasslands of south-western Africa, especially Namibia. They grow to about 15-m across before the vegetation covers them again.
 - No one knows for sure why this happens. Some suggested reasons are: competition among various types of grasses for water and nutrients, the activities of sand termites and gases rising through the soil.



7. • Geometric patterns, usually circular and covering huge areas; they are formed overnight by selectively flattening standing crops in fields.
 - Found in various parts of the world, but especially common in Wiltshire in England; first appeared in the 1970s and peaked in number and complexity in the 1980s and 90s
 - No one has seen one being made, except self-made ones. Some suspects are hedgehogs, winds, UFOs and people (two men confessed in 1991).
 - Patterns resembling the ones in fields have also been spotted on the ocean floor, first in the 1990s, off the coast of Japan. These were found to have been made by male pufferfish trying to attract mates.

47. Disambiguation

When something is ambiguous, it means that its meaning is not clear as it could mean a number of things. In sentences this can arise because a word or phrase has more than one meaning. For example, if someone says, "I like Time," one is not sure whether the person likes the magazine, the film, the song or something else by that name. To disambiguate means to remove the uncertainty in the meaning in such cases.

An app has disambiguation pages that give a list of words and/or pictures related to a given word. For each word given below, tick the options that would appear on such a page.

1. Canary

- a. Canary Islands b. Canary River c. canary yellow d.



e.



2. B

- a. a blood group b. boron c. byte d. bee e. vitamin

3. Buffalo

- a. places called Buffalo b. William Cody (Buffalo Bill) c.



d.



e.



4. Mace

- a. a weapon b. an irritant spray c. a puzzle with a network of passages d.



5. Galileo

- a. a scientist b. a spacecraft to Jupiter c. a moon of Jupiter d. global navigation satellite system

6. Monitor

- a. a student with special duties b.



c.



d.



e.



7. Java

- a. an island b. coffee c. a programming language d. a software e. a breed of chicken

8. Chrysanthemum

- a. mum b.



c.



d.



e.



f.

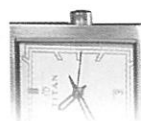


9. Titan

- a. matchmaker b. an element c. a moon of Saturn d. a race of Greek deities e. a US rocket family

10. Crown

- a. the reigning monarch b.



c.



d.



e.



f.



48. That Time in History

1. Choose the correct option or options.

1. Around 3000 BC, most of the world is in the Neolithic Age. Around that time
 - a. woven cotton fabrics are made in the Indus valley
 - b. the first step pyramid built
 - c. scripts for writing are developed in Egypt and Mesopotamia (3300–3000 BC)
 - d. the construction of the Stonehenge begins (3100 BC)

2. Which of these happened during the 8th century BC (800 BC–701 BC)?

- a. the first Olympics (776 BC)
- b. Rome is founded (753 BC)
- c. the oldest Upanishads composed (around 700 BC)
- d. Athens is founded (700 BC)

3. Ashoka the Great ascends the throne in 269 BC. In the next ten years in history

- a. Ashoka conquers Kalinga
- b. Archimedes' principle is enunciated
- c. Ashoka dies
- d. Archimedes makes the Archimedes' screw, a machine for raising water

4. Between AD 79 and AD 81,

- a. Mount Vesuvius erupts and destroys the cities of Pompeii and Herculaneum (AD 79)
- b. the Colosseum at Rome is opened (AD 80)
- c. the Leaning Tower of Pisa built (AD 79)

5. The Shore Temple at Mahabalipuram is built between AD 700 and 728. During this time

- a. Parsees come to India
- b. Satavahana kings help build prayer halls at Ajanta
- c. the Great Stupa at Sanchi is built
- d. Umayyad Mosque is built in Damascus

6. Portuguese Vasco da Gama lands at Calicut on 20 May 1498. That year

- a. Gutenberg builds his printing press
- b. Christopher Columbus discovers Trinidad
- c. Leonardo da Vinci finishes painting The Last Supper
- d. Sikandar Lodi becomes the Sultan of Delhi

7. In 1776, the USA declares independence from Great Britain. That year

- a. marks the beginnings of San Francisco
- b. saw the first submarine attack on a ship
- c. the Bolshoi Theatre, Moscow, is founded
- d. Aurangzeb dies

8. The Revolt of 1857. That year

- a. Pasteur proves that microorganisms spoil milk
- b. Delhi University is established
- c. the world's first lift for a building is installed
- d. condensed-milk production starts

9. 1869: Mohandas Karamchand Gandhi born. Also born

- a. Adolf Hitler, German dictator
- b. Edwin Lutyens, architect of New Delhi
- c. Grigori Rasputin, influential Russian healer
- d. Neville Chamberlain, PM of UK

10. 1947: India wins freedom. That year

- a. The Diary of Anne Frank is published
- b. is the year of the Kon-Tiki expedition
- c. the first commercial microwave oven is made
- d. the Cold War begins



Step pyramid at Saqqara, Egypt



Shore Temple, Mahabalipuram



Performance at the Bolshoi Theatre



Sir Edwin Lutyens designed many war memorials, including India Gate, New Delhi.

2. Complete the table by writing two events that happened in each given year. Choose events from the ones at the bottom of the page. The first one has been done for you.

	Year	Events
1.	1900	<ul style="list-style-type: none"> • the second modern Olympic Games • India participates in the Olympics for the first time • Davis Cup tournament starts • Sigmund Freud publishes <i>The Interpretation of Dreams</i>
2.	1901	<ul style="list-style-type: none"> • the first Mercedes car built • the first electric vacuum cleaner made
3.	1905	<ul style="list-style-type: none"> • Rotary International founded • Albert Einstein gives the world $E = mc^2$
4.	1911	<ul style="list-style-type: none"> • Marie Curie wins her second Nobel Prize • The Inca city of Machu Picchu rediscovered
5.	1912	<ul style="list-style-type: none"> • the first Tarzan story published • the first parachute jump from an aeroplane
6.	1913	<ul style="list-style-type: none"> • the first electric refrigerator built • the ozone layer discovered by French physicists
7.	1945	<ul style="list-style-type: none"> • United Nations established • Subhash Chandra Bose's plane crashes in Taiwan
8.	1950	<ul style="list-style-type: none"> • India becomes a republic • the Korean War begins
9.	1971	<ul style="list-style-type: none"> • the United Arab Emirates (UAE) is formed • Salyut I, the first space station, goes into orbit
10.	2000	<ul style="list-style-type: none"> • a unique leap year that comes once in 400 years • Summer Olympics held in Sydney

a. the first Nobel Prizes b. Jules Verne dies c. the Titanic sinks d. Rabindranath Tagore wins the Nobel Prize in Literature e. nuclear bombs dropped on Hiroshima and Nagasaki f. radio message sent across the Atlantic g. the partition of Bengal by the British h. India's first full-length feature film, *Raja Harishchandra*, released i. the Nuremberg Trials begin j. India's capital shifted from Calcutta to Delhi k. the First Balkan War breaks out l. the Constitution of India comes into effect m. Bangladesh is born n. Dr Rajendra Prasad becomes the president of India o. India's population crosses the one billion mark p. Himachal Pradesh is formed q. Roald Amundsen's expedition reaches the South Pole r. Chhattisgarh, Uttaranchal (Uttarakhand) and Jharkhand formed

49. Quiz 5

1. True or false?

- a. The river Mississippi flows from the USA to Mexico.
- b. The deepest lake in the world is Lake Baikal in Russia.
- c. Jackfruit is the national fruit of Bangladesh.
- d. Thailand's national flower is the orchid.
- e. India's oldest football club is Mohun Bagan AC.
- f. Courtney Walsh was the first to take 500 wickets in Tests.
- g. The first international T20 match was played between India and Pakistan.
- h. The first batsman to be given out by the third umpire was Sachin Tendulkar.
- i. The Internet and the Web are two names of the same thing.
- j. Dennis Ritchie created the C programming language.
- k. Robert Goddard is known for his work on modern rockets.
- l. Wernher von Braun was a brilliant engineer who was involved in the development of both German and US rockets and missiles.

[illegible]

2. Fill in. The last letter of a word is the first letter of the next one.

- a. The enzymes in this fruit break down the proteins in meat.

- b. A colour

- c. An element discovered by Marie Curie and Pierre Curie

- d. Fossa, a catlike animal, is found only on this island.

- e. The capital of Iceland

- f. The art of cutting and folding paper into decorative shapes



- g. Four-volume work by Megasthenes

Answers

Chapter 1

1. pakora 2. tikka 3. hummus 4. kosambari 5. Italy 6. cabbage 7. canape 8. lukhmi 9. croquettes 10. consomme 11. crudites 12. all of them are dressings

Chapter 2

1. Raisina Hill 2. Sirius Black 3. White House 4. Capitol Hill 5. 10 Downing Street 6. Sydney Opera House 7. Wankhede Stadium 8. Alcatraz 9. New York Stock Exchange, Dalal Street 10. William Shakespeare 11. Sunset Boulevard

Chapter 3

1. b 2. d 3. c 4. b 5. b 6. b 7. a 8. a 9. c 10. a 11. b

Chapter 4

1. minaret at the back missing 2. extra dome at the top of Matrimandir, Auroville 3. Lotus Temple in place of Sydney Opera House 4. Indian tricolour on top of the Arc de Triomphe, Paris 5. the lead horse has an extra foreleg 6. animals missing from the base 7. Bengal gram in place of peanuts 8. pineapple leaves on papaya 9. arrows flipped on the control button 10. incorrect positions of the lowest holes 11. green light should be at the bottom 12. flipped sign at the roundabout 13. headless shadows 14. three tubs have wrong-coloured paints

Chapter 5

1. a. Christopher Columbus b. San Francisco c. Tadao Kashio d. Jaipur e. Paul Hawkins f. Willebrordus Snellius (Willebrord Snell) g. Rome h. Muhammad bin Saud i. Walmart j. Amar Bose 2. a. Nehru jacket, Jawaharlal Nehru b. boson, Satyendra Nath Bose c. AK-47 (Avtomat Kalashnikova), Mikhail Kalashnikov d. Philippines, King Philip II of Spain e. July, Julius Caesar f. Alfa Romeo, Nicola Romeo

Chapter 6

1. acrophobia 2. books 3. animals 4. arachnophobia 5. Peter Pan 6. claustrophobia 7. barophobia 8. long words 9. injections 10. clowns 11. astraphobia 12. cats

Chapter 7

1. a. herbs b. bones c. Santa's reindeer d. types of pasta e. fish f. types of cheese g. fruit h. footwear i. gymnastics apparatus j. famous horses (history/fiction) k. coffee drinks 2. a. Graphics Interchange Format b. Digital Camera Images c. Universal Serial Bus d. Association of South East Asian Nations e. Special Weapons and Tactics f. Microwave Amplification by Stimulated Emission of Radiation g. Airborne Warning and Control System h. Housing and Urban Development Corporation Limited i. National Bank for Agriculture and Rural Development j. Completely Automated Public Turing test to tell Computers and Humans Apart 3. 1. c 2. a 3. b, c 4. a, b, d 5. a, b, c, d 6. d 7. c 8. b 9. c 10. b 11. b 12. a

Chapter 8

1. a. Raja Ravi Varma b. Jamini Roy c. Amrita Sher-Gil d. Vincent van Gogh e. Leonardo da Vinci f. Claude Monet g. Rembrandt h. Michelangelo i. Auguste Rodin 2. 1. a 2. b 3. c 4. a 5. d 6. a, b, c, d 7. a 8. d 9. d 10. c 11. a

Chapter 9

1. 1. a, b, d 2. d 3. b 4. a, b, c, d 5. b, c, d 6. a, b, d 7. c 8. c 9. a 10. b 11. b, c 2. 1. c 2. c 3. d 4. a 3. a. Santosh Trophy b. Deodhar Trophy c. Beighton Cup d. Ryder Cup e. Nehru Trophy f. FA Cup g. Copa Libertadores de America h. Ezra Cup i. Corbillion Cup j. America's Cup 4. a. Kolkata b. 1936 c. Balbir Singh Sr d. Pakistan e. the USA f. World Cup 5. a. Leander Paes b. Paavo Nurmi c. Fanny Blankers-Koen d. Wilma Rudolph e. Ramon Fonst f. Aladar Gerevich g. Birgit Fischer

Chapter 10

1. 1. c 2. d 3. a, b, c, d 4. a, b, c, d 5. b 6. b, d 7. a, b, c 8. a, b, c, d 9. d 2. a. Ludwig van Beethoven b. Wolfgang Amadeus Mozart

- c. Johann Sebastian Bach d. Frederic Chopin e. Joseph Haydn f. Zubin Mehta g. Maria Callas

Chapter 11

1. a. Dilwale Dulhania Le Jayenge b. Bhanu Athaiya c. Sholay d. Satyajit Ray e. Gone with the Wind 2. 1. d 2. a 3. c, d 4. a, b, c 5. d 6. a, d

Chapter 12

1. 1. a 2. c 3. b 4. a 5. a, b, c, d 6. d 7. d 8. a 2. a. Venice b. Chetan Anand c. Peacock d. Hornbill e. Woodstock f. Ajmer 3. a. Sundance b. Rabat (Morocco) c. Exit d. Pt Bhimsen Joshi e. Pushkar

Chapter 13

1. a. non-fiction b. non-fiction, biography c. humour d. science fiction e. horror f. whodunnit g. thriller h. fantasy 2. a. R K Narayan b. Devdas c. Booker Prize d. my struggle e. Boris Pasternak f. Peter Pan g. The Old Man and the Sea h. N Mandela 3. 1. a, b, c 2. a, b, c, d 3. c 4. d 5. a 6. a, d 7. d 8. a 9. d 10. c 11. a, b, c, d

Chapter 14

1. a. Odyssey b. Firdawsī c. Gilgamesh d. Manimegalai e. Kalidasa f. Ramayana g. John Milton h. The Tale of the Heike 2. False: e

Chapter 15

1. a. living cells b. fossils c. kidneys d. drugs e. teaching f. people at work g. elections 2. a. lame duck b. think out of the box c. turn the page d. weather the storm e. sitting duck f. turned the tables g. think on your feet h. under the weather i. hit the roof j. hit the headlines 3. a. inter alia b. in situ c. bric-a-brac d. coup d'etat e. haute couture f. quid pro quo g. volte-face h. carte blanche i. sine qua non 4. Down: 1. phishing 2. spam 3. hashtag 5. mirror Across: 4. podcasting 6. netizen 7. blog 8. trend

Chapter 16

1. 1. d 2. a, b 3. b, d 4. c, d 5. b 6. a, b, d 7. a 8. a, b, c, d 9. c 10. d 2. False: c, d 3. a. 5 b. 6 c. 3 d. 1 e. 4 f. 7 g. 2

Chapter 17

1. c 2. a, b, c 3. c 4. d 5. b 6. a, c, d 7. a, b, c, d 8. b (from the French m'aider) 9. d 10. c 11. d

Chapter 18

1. b 2. b, c 3. a 4. a, c, d 5. c 6. c 7. d 8. a, b, d 9. a 10. b 11. d

Chapter 19

1. a. Amnesty International b. Red Cross c. IUCN (International Union for Conservation of Nature) d. Médecins Sans Frontières (MSF) or Doctors Without Borders e. Greenpeace f. BRAC g. Pratham h. Goonj i. CARE 2. 1. c 2. a 3. b 4. a 5. b 6. c 7. a 3. False: b, d

Chapter 20

1. 1. b 2. c 3. c 4. b 5. b 6. a 7. a 8. b 9. c 10. b 2. a. Axis b. Poland c. Stalingrad d. Britain e. Pearl Harbor f. Dunkirk g. Churchill h. Enigma i. Rommel j. Normandy k. Eisenhower l. Kohima m. Holocaust 3. a. Attila the Hun b. Genghis Khan c. Ho Chi Minh d. F D Roosevelt e. Anne Frank

Chapter 21

1. 1. d 2. d 3. b 4. d 5. d 6. a 2. a. Voltaire b. Shakespeare c. Lincoln d. Mandela e. Malala f. Stephen Hawking

Chapter 22

1. True: a, c, f, g, h, i, j, l, m 2. a. IAS, IPS b. Indian Foreign Service c. Cabinet Secretary d. Chief Secretary e. Indian Engineering Service or IES f. Indian Foreign

Service g. IPS

3. 1. c, d 2. a, d 3. b, c 4. d 5. d 6. c 7. b 8. a 9. c 10. a
11. c 12. a (gorilla)

Chapter 23

1. 1. c 2. a, b 3. b, c 4. a, b, c, d 5. a 6. b 7. c 8. d 9. b
10. d 11. a, c 12. c 13. b 14. a, b, d
2. a. 4, 12, 20, 28 b. 1, 17, 26 c. 2, 11, 18, 25, 27, 33
d. 5, 10, 19, 30, 34 e. 3, 13, 19, 23, 30 f. 7, 12, 14, 24, 31
g. 8, 12, 22, 29 h. 6, 9, 15, 16, 21, 32

Chapter 24

1. a. M b. C c. C d. C e. M, C f. M g. M h. M i. M, C j. M, C
2. False: a, b, d
3. 1. a, d 2. a, b, c 3. b 4. a 5. b 6. d 7. a, b 8. b 9. c 10. c
11. d 12. d

Chapter 25

1. a. Mahabalipuram b. Srirangapatna c. Hampi d. Chittor
e. Sarnath f. Devagiri g. Aihole h. Guwahati i. Port Blair
2. 1. d 2. b 3. a, b, c, d 4. a 5. c 6. b 7. a, b, d 8. a 9. c
10. d 11. a, b, d

Chapter 26

1. Damodar Chapekar 2. Ram Prasad Bismil 3. Ashfaqullah Khan
4. Chandra Shekhar Azad 5. Surya Sen 6. Rashbehari Bose
7. Rani Gaidinliu 8. Udhham Singh 9. Lakshmi Swaminathan

Chapter 27

1. a. Mississippi b. Mount McKinley c. Death Valley d. Lake Superior
e. bison f. Denmark g. Prairies h. Texas i. Panama Canal
2. False: g
3. 1. a, b, c 2. b 3. d 4. b 5. c 6. b 7. c 8. d 9. b 10. d

Chapter 28

1. 1. a, d 2. b 3. a, b, c, d 4. c 5. b 6. c 7. d 8. c 9. a
2. a. pampas b. Iguazu c. gauchos d. Chile e. golden poison
dart frog f. Union of South American Nations (UNASUR)
3. a. Simon Bolivar b. Gabriel Garcia Marquez c. Che Guevara
d. Eva Peron e. Ayrton Senna f. Pablo Neruda

Chapter 29

1. 1. b 2. a 3. a 4. a 5. a, b, c, d 6. c
2. a. an Inuk b. Native American c. Quechua d. Yanomami e. Utah
f. slavery g. Trail of Tears h. shamanism
3. a. European b. Chief Seattle c. totem poles d. reservations
e. Aymara f. Thanksgiving

Chapter 30

1. a. Scotland, Edinburgh b. UAE, Abu Dhabi c. Austria, Vienna
d. Jamaica, Kingston e. Namibia, Windhoek f. Thailand, Bangkok
g. Spain, Madrid h. Belgium, Brussels i. Madagascar, Antananarivo
2. Down: 1. Bali 3. Shanghai 4. Myanmar 5. Baltic 6. Timor-Leste
8. Greece 10. Fiji
Across: 2. Muscat 7. Hungary 9. Barcelona 11. Eritrea 12. Beirut

Chapter 31

1. c 2. a, b, d 3. a, b, c 4. a, c 5. d 6. a, b, c, d 7. c 8. a 9. c
10. a 11. a

Emblems (from top): USA, Thailand, Sri Lanka, Japan (Imperial Seal)

Chapter 32

1. a. Babylon b. Harappa c. Troy d. Knossos e. Palenque
f. Machu Picchu g. Angkor Thom h. Pompeii
2. 1. c 2. d 3. c 4. a 5. b 6. c

Chapter 33

1. 1. a 2. b 3. d 4. a 5. b 6. c 7. a, b, d 8. a, b, d
2. a. Lascaux b. Delphi c. Robben d. Yellowstone e. Xanadu
f. Genbaku g. Tijuca h. Argentina
3. False: a, d

Chapter 34

1. 1. b 2. b 3. a 4. c 5. d 6. c (cars) 7. a 8. a 9. c, d
10. all 11. d 12. all
2. a. common leopard b. common Mormon c. tailed green jay
d. common jezebel e. blue tiger f. common emigrant g. skipper
h. lime butterfly i. plain tiger

Chapter 35

1. Delicate Arch 2. Marble Caves 3. Sailing Stones 4. Sea Candles
5. Moeraki Boulders 6. Spotted Lake 7. Organ Pipes
8. Liquid Rainbow 9. Iceland 10. Eye of the Sahara

Chapter 36

1. 1. a 2. c 3. d 4. d 5. d 6. a 7. a, b, c, d 8. c 9. d
10. a 11. b, d 12. b 13. a 14. b 15. c 16. c 17. d
Pictures (from top): moray eel tree frog piranha Indian
bullfrog mudskipper axolotl stingray poison dart frog
2. a. Siamese fighter b. regal tang c. angelfish d. gourami

Chapter 37

1. True: all
2. a. sea cucumber b. nautilus c. sea slug d. mussels
e. sea urchin f. limpets
3. a. wing shell b. razor shell c. scallop d. turret shell e. cowrie
f. knobbed conch g. murex h. tellin shell

Chapter 38

1. 1. a, b, d 2. a, b, c, d 3. c 4. d 5. b 6. a, b, c, d
7. a, b, c, d 8. a, c, d 9. d 10. b
2. a. button mushroom b. bracket fungus c. puffball mushroom
d. oyster mushroom e. truffle fungus f. coral fungus
g. mould h. chanterelle
3. False: i

Chapter 39

1. 1. a, b, c, d 2. c 3. b, c 4. a, b, c 5. a, c 6. d 7. a
8. a, b, c, d
2. a. emperor penguins b. orchids c. red crabs d. mangrove
e. caffeine f. hermit crab g. octopus h. chuckwalla
i. Namib Desert j. eucalyptus

Chapter 40

1. 1. d 2. b 3. c 4. c 5. d 6. b 7. c
2. a. blood pressure b. height c. heart beat d. lens e. respire
f. blood g. eardrum h. dentist
3. a. hazelnuts b. acorns c. coffee beans d. mushrooms e. turtle
f. garden lizard g. salamander h. snake i. American football
j. handball k. rugby l. lacrosse m. Amelia Earhart n. Indra Nooyi
o. Sarojini Naidu p. Sunita Williams q. Margaret Thatcher
r. Kalpana Chawla s. Golda Meir t. Angela Merkel

Chapter 41

1. 1. c 2. b 3. a, b, c 4. d 5. d 6. a 7. d 8. c
2. a. Venus b. Goldilocks zone c. anthropogenic d. Chernobyl
e. Rio de Janeiro f. marine plants g. Exxon Valdez
3. a. Gro Harlem Brundtland b. Anil Agarwal c. James Lovelock
d. Dian Fossey e. Medha Patkar

Chapter 42

1. d 2. b 3. d 4. a, c 5. c 6. a, b, c, d 7. c 8. b 9. b, c, d
10. a 11. c 12. a 13. a, b 14. c 15. a, b, c 16. d

Chapter 43

1. 1. c 2. c 3. b 4. a 5. a 6. d 7. a, b, c 8. c
2. True: all
3. a. Gregor Mendel b. James Watson, Francis Crick
c. Human Genome Project d. sheep e. Har Gobind Khorana

Chapter 44

1. a, b, c 2. c 3. a, b, c 4. d 5. b 6. a 7. a, b, c, d

Chapter 45

1. 1. d 2. b 3. d 4. a, b 5. a, b 6. a, b, c, d 7. c 8. c 9. b 10. b
2. Across: 5. superconductor 7. bionics 9. wiki 10. metadata
11. macro 13. bot 14. clipboard
Down: 1. defragment 2. shareware 3. MP3 4. Invisible Web
6. pixelated 8. intranet 12. spider

Chapter 46

1. mirage 2. a. aurora borealis b. aurora australis 3. halo
4. Brocken spectre 5. Nazca lines 6. fairy circle 7. crop circle

Chapter 47

1. a, c, d, e (canary melon) 2. a, b, c, e 3. a, b, d, e 4. a, b, d
5. a, b, d 6. a, b, d 7. all 8. a, b, c, e 9. c, d, e
10. all; e shows the flowers of the plant crown of thorns

Chapter 48

1. 1. a, c, d 2. a, b, c 3. a, b, d 4. a, b 5. a, d 6. b, c 7. a, b, c
8. a, c, d 9. b, c, d 10. all
2. 2. a, f 3. b, g 4. j, q 5. c, k 6. d, h 7. e, i 8. l, n 9. m, p 10. o, r

Chapter 49

1. False: a, d, g, i
2. a. papaya b. amber c. radium d. Madagascar e. Reykjavik
f. kirigami g. Indica