

UG Question Paper_2024 R1_English

Reading Comprehension

Read the passage carefully and then answer the questions below.

We are walking around the hillocks and fields looking for jumbo footprints. (Para 1)

We find plenty that are larger than dinner plates, deep imprints on the soft earth. The older ones are gently crumbling. Others point to what that animal did: a little saunter, a good meal, a lot of dung. And a trail of things it chucked around: granite poles, wire fences, trees, gates. (Para 2)

We stop to photograph everything. I send a picture of the footprints to my editor. “Was there an elephant attached to it?” he replies hopefully. I pray his hopes are dashed. (Para 3)

Because, from what I heard, in Krishnagiri district, elephants are unlikely to bless your head and ask for a banana. That might be the routine with temple elephants. These are their wild cousins. And they are usually hungry. (Para 4)

My trip to meet the *ragi* farmers of Krishnagiri district, Tamil Nadu, in December 2021, led me, unexpectedly, down the elephant path. I thought there would be discussions around the economics of farming. Sure, there were some. But mostly, I heard, in farm after farm, that the reason they are growing just enough *ragi* (finger millet) for their homes is – elephants. Between poor prices (25 to 27 rupees a kilo, instead of the 35 to 37 that will help them break-even), climate change, and the spectacularly heavy rains, farmers have it rough. Add the trunks and tusks of elephants, and it has been, very nearly, the mammoth straw that has broken the farmer’s back. (Para 5)

“Elephants have so much talent. They have learnt how to hold down the wire ropes and cross wire fences. They know to use trees to short-circuit electric fences,” explains Anandramu Reddy, a farmer. He walks us to the edge of the Melagiri Reserve Forest. (Para 6)

For years, elephants have been wandering out of the forest and into the fields. Groups of pachyderms would descend on the villages, eating much of the *ragi* crop and trampling the rest. It pushed the farmers to think of alternatives – tomatoes, marigold, roses. Anything they believe has a market, and something the elephants don’t care to eat. “After the electric fence here came up in 2018-19, the herd doesn’t come out. But nothing,” he assures me, “stops the

male elephants: Mottai Vaal, Makhana, Giri...their hunger drives them out and into our fields.”
(Para 7)

“The quality of the forest is one of the main reasons for the human-elephant conflict,” explains S.R. Sanjeev Kumar, the honorary wildlife warden of Krishnagiri and Dharmapuri districts in Tamil Nadu. In Krishnagiri alone, he estimates, a whopping 330 villages are affected by this problem. (Para 8)

Elephants strike just after the northeast monsoon, when the crops are ready to be harvested. “There are also human deaths, 12 or 13 in a year [in Krishnagiri district], which are crowded between December and January during the *ragi* harvest time.” Elephants also die. “There is retaliation. And accidents that happen on railway lines, highways, or when they fall into open wells. And they also get electrocuted by wires laid out for wild boars.” (Para 9)

Elephants eat over 100 species of plants, Sanjeev explains. “Based on observation of captive elephants, we know that they eat 200 kilos of grass and drink 200 litres of water. “But”, he points out, “in the wild, the quantity varies greatly from season to season – so can their body condition.” (Para 10)

Moreover, *Lantana camara* – an invasive, introduced species of flowering plant that elephants cannot eat – now covers “85 to 90 per cent of the forest in the Hosur region”. Lantana, Sanjeev argues, is the prime reason elephants come out of their zone. Besides, for the jumbos, *ragi* is juicy and very tempting. “If I was one, I would come to eat it too.” Males, particularly, are under a compulsion to raid crops. For, between the ages of 25 and 35, they undergo a growth spurt. These are the ones who take big risks. (Para 11)

But not Mottai Vaal. He is an old fellow and knows his limits. Sanjeev reckons he is past 45, closer to 50. He calls him the ‘sweetest’ elephant. “He has a sidekick, Makhana, and they also band together with other young males.” Why does he raid fields if he’s past the growth spurt? Sanjeev Kumar puts it down to Mottai Vaal needing to retain his body condition. “He gets very good food outside – *ragi*, jackfruit, mango – and after eating it, he goes back into the forest.” There are other male elephants who eat cabbage, beans, cauliflower. (Para 12)

(742 words, Excerpted and adapted from “In Tamil Nadu: Ragi – A Jumbo Love Story” by Aparna Karthikeyan, *PARI*, May 2022.)

“We find plenty that are larger than dinner plates.” How large is that? Find the closest comparison:

- a) The size of a watermelon
- b) The size of a lemon
- c) The size of a tomato
- d) The size of a mosquito

What is the purpose of para 2?

- a) To show the reader what an elephant looks like
- b) To describe the damage an elephant can do
- c) To introduce the writer
- d) To show the many effects of an elephant visit on an area

In Para 3, why does the writer hope there is no elephant in her photographs?

- a) Because she thinks that her article doesn't need pictures to make its point.
- b) Because she doesn't like elephants.
- c) Because she is aware that these are wild elephants, and could be dangerous.
- d) Because she disagrees with her editor.

Apart from conflict with elephants, which of these is **not** a difficulty faced by farmers in Krishnagiri district in the article:

- a) Climate change
- b) Low *ragi* prices
- c) Drought
- d) Heavy rain

Why are male elephants more likely to attack the crops, as per the article?

- a) During the monsoon, they have a growth spurt.
- b) Male elephants have a growth spurt and they need to maintain their body weight.
- c) They have developed a preference for human foods, including *ragi*, mango, and cauliflower.
- d) Male elephants are more aggressive than female elephants.

Which of these is **not** a source of danger for elephants in Krishnagiri district as mentioned in the article?

- a) Falling into wells
- b) Poachers
- c) Railway accidents
- d) Getting electrocuted

In Para 11, the *Lantana camara* is described as “invasive.” Choose the word with the closest opposite meaning:

- a) Internal
- b) Spreading
- c) Confined
- d) Gregarious

In Para 11, what is the closest meaning of the word “compulsion”?

- a) Confirmation
- b) Constraint
- c) Completion
- d) Choice

What is the main reason for the article to quote SR Sanjeev Kumar?

- a) He is the wildlife warden and can be considered an expert on the forests of Krishnagiri district.
- b) He has a lot of pertinent information to offer about the effects of *Lantana camara*.
- c) He is personally acquainted with the elephants, including Mottai Vaal, and has a fondness for them.
- d) He is a friend of the writer, and can be thought of as a trustworthy person.

What is the overall argument this article is making?

- a) *Lantana camara* must be removed from forests.
- b) Farmers in Krishnagiri district must adapt to changing elephant habits and grow crops like marigold and roses instead of ragi.
- c) Mottai Vaal is the sweetest elephant who has developed a taste for cultivated jackfruit, ragi and mango.
- d) When addressing the conflict between farmers and elephants in Krishnagiri district, there are many factors to be considered.

Read the passage carefully and then answer the questions below.

It does seem highly improbable but India, Australia and South America - not to mention Antarctica - were once not just neighbours but joined at the hip and it is only in the last three or four decades that we have begun to piece together a better understanding of the supercontinent ‘Gondwana’ and how it might have broken up. The name Gondwana is, of course, an allusion to the Gond tribe of central India, and its coiner was a professor of geology at the University of Vienna, Dr. Eduard Suess. Professor Suess, in 1885, was among the first

people to hypothesize that all the major land masses of the world were once fused together in a supercontinent or, at the very least, connected by land bridges and he borrowed the name ‘Gond-wana’ from British explorers’ accounts of this remote jungle-dwelling Indian tribe! (Para 1)

Our understanding of the break-up of Gondwana hinges on evidence left behind by three major volcanic events that occurred in a span of roughly 100 million years, from 180 to 80 million years ago. The first of these eruptions sliced Africa and South America from the rest of the Gondwanan land mass 180 million years ago. The second eruption 118 million years ago prised Australia and Antarctica away from Greater India (comprising modern-day India, Sri Lanka and Madagascar) and this is when the Marion and Crozet hotspots (a ‘hotspot’ is an area of intense volcanic activity, usually under the ocean floor) emerged from beneath south-east India and Madagascar between 107 and 105 million years ago. Around 88 million years ago a third major volcanic event divided India from Madagascar. In each of these volcanic events, immense lava flows continued for millions of years and left behind unmistakable remnants that have helped us fit together pieces of the jigsaw puzzle. (Para 2)

There is one special place in India which was ideally situated to witness the formation and eventual break-up of Gondwana. This is a hemispherical rock that lies about half a kilometre off the southernmost tip of India in Kanyakumari, Tamil Nadu. On this rock stands the Vivekananda Memorial which is a popular tourist spot. People also flock here to see the merging of three water bodies - the Bay of Bengal, the Arabian Sea, and the Laccadive Sea. The rock pops out of the sea like the humped back of a whale and is made of a single massive block of charnockite. This oval islet rock (roughly the size of the Chhatrapati Shivaji Terminus in Mumbai) rises about 60 metres above the sea. From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India was fused with Antarctica and Australia. Between 180 and 118 million years ago, when India separated from Antarctica, it left behind this islet, a desolate witness to the merging and breaking of Gondwanan land masses. Geologists call the Vivekananda Rock Memorial ‘the Gondwana junction’, because it marks the place where India, Madagascar, Sri Lanka, East Antarctica and Australia were once joined together. (Para 3)

(Source: Pranay Lal. 2016. *Indica: A Deep Natural History of the Indian Subcontinent*. Gurgaon: Allen Lane-Penguin Random House, India.)

Which countries and continents were once geologically joined together?

- a) Gondwana, Tamil Nadu, Sri Lanka, East Antarctica
- b) India, Australia, Antarctica, South America
- c) North America, South America, Antarctica, Madagascar
- d) India, Australia, Sri Lanka, Odisha

Which of the following is referred to as “a desolate witness”?

- a) The Gondwanan landmasses which comprised of India, Antarctica and Australia
- b) The rock which is now known as the Vivekananda Rock Memorial
- c) The islets of Sri Lanka and Madagascar
- d) The convergence of the three seas at Kanyakumari

What kinds of remnants were not left behind after the breakup of Gondwana?

- a) Volcanic rock
- b) Solidified lava and magma
- c) Charnockite
- d) Coral reefs

Choose the sentence that has the antonym (opposite) of the highlighted word in the following sentence: “From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India was **fused** with Antarctica and Australia.”

- a) From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India related to Antarctica and Australia.
- b) From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India was separated from Antarctica and Australia.
- c) From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India was linked with Antarctica and Australia.
- d) From 870 to 680 million years ago, massive outpourings of magma began here and at different points between Balasore in Odisha and Arcot near Chennai, where India was joined to Antarctica and Australia.

Which of the following sentences is written in the **future tense**?

- a) Around 88 million years ago a third major volcanic event divided India from Madagascar.
- b) Around 88 million years from now a third major volcanic event will divide India from Madagascar.

- c) Around 88 million years ago a third major volcanic event is dividing India from Madagascar.
- d) Around 88 million years ago a third major volcanic event will divide India from Madagascar.

Which of the following sentences is in the **present continuous tense**?

- a) In each of these volcanic events, immense lava flows will continue for millions of years and left behind unmistakable remnants that have helped us fit together pieces of the jigsaw puzzle.
- b) In each of these volcanic events, immense lava flows continued for millions of years and left behind unmistakable remnants that have helped us fit together pieces of the jigsaw puzzle.
- c) In each of these volcanic events, immense lava flows are continuing for millions of years to leave behind unmistakable remnants that are helping us fit together pieces of the jigsaw puzzle.
- d) In each of these volcanic events, immense lava flows will continue for millions of years to leave behind unmistakable remnants that will help us fit together pieces of the jigsaw puzzle.

From the geologist's point of view, the rock where Vivekanand Memorial stands today is important because:

- a) It has the Vivekananda Memorial.
- b) It was formed due to magma outpouring.
- c) It rises 60 meters above the sea.
- d) It marks a point at which five countries were once joined.

The passage describes Marion and Crozet as “hotspots”, meaning areas of intense volcanic activity, usually under the ocean floor. However, this word is also used in many other contexts in our everyday lives. Which of the following contexts is it **not** used in?

- a) A location for internet connectivity.
- b) A place of peace and serenity.
- c) An area with high temperatures.
- d) A popular food joint.

The main conclusion that the passage arrives at is:

- a) All the land masses of the world existed as a single supercontinent in the beginning.
- b) Vivekananda Rock Memorial is situated at Gondwana junction.
- c) Marion and Crozet emerged from beneath south-east India and Madagascar.
- d) Gond-wana' is a remote jungle-dwelling Indian tribe.

From the passage, what appears to be the main reason for the separation of the supercontinent into smaller continents:

- a. Movement of landmasses
- b. Volcanic eruption
- c. Climatic changes
- d. Ocean currents

Quantitative Reasoning

The angles of a triangle are in the ratio 1:3:5. Then the measure of the greatest of the three angles is

- a) 20°
- b) 180°
- c) 100°
- d) 90°

Garima rides her bicycle from home to school. If she rides at a speed of 20 km/hr, she arrives at school 5 minutes late. However, if she rides at a speed of 30 km/hr, she arrives at school 10 minutes early. What is the distance between her home and school?

- a) 15 km
- b) 20 km
- c) 25 km
- d) 30 km

Arjun and Ram invested in a piece of land for a total of 2.7 crore rupees, in a ratio of 2:3. After three years, they sold the land for 3.5 crore rupees. How much profit did Arjun make?

- a) 16 lakhs
- b) 32 lakhs
- c) 48 lakhs
- d) 64 lakhs

If MADRAS is coded as NBESBT, how is BOMBAY coded (under the same coding scheme)?

- a) CPNCBX
- b) CPNCBZ
- c) CPOCBZ
- d) CQOCBZ

Vikram sells goods at the cost price, but he uses a fake weight of 800 grams instead of 1 kg. How much profit does he make?

- a) 2%
- b) 8%
- c) 20%
- d) 25%

Three spraying machines, all with the same capacity, can finish painting a house in 60 minutes. How long will it take for five machines of the same capacity to do the same job?

- a) 30 minutes
- b) 24 minutes
- c) 36 minutes
- d) 100 minutes

In Metropolis City, the auto-rickshaw fare is fixed at Rs 25 for the first 2 km and Rs 15 for every kilometer thereafter. If an auto-rickshaw driver of the city follows this rule, what is the fare for 10 km?

- a) 250 rupees
- b) 85 rupees
- c) 120 rupees
- d) 145 rupees

A train traveling at a speed of 90 km/hr crosses a pole in 7 seconds. What is the length of the train?

- a) 170 meters
- b) 175 meters
- c) 182 meters
- d) 185 meters

Swati has some rasagollas with her. She gave two-fifths of her rasagollas to Bella. Then, Bella gave one-fifth of what she got from Swati to Khalid. If Swati had 75 rasagollas initially, how many did Khalid get?

- a) 6
- b) 25
- c) 10
- d) 4

The average age of Ajay and Vijay is 33. If their ages are in the ratio Ajay : Vijay = 5:6, then the age of Ajay is

- a) 30 years
- b) 33 years
- c) 36 years
- d) 24 years

In a library, there are two types of bookshelves: wooden and metal. Only wooden bookshelves have textbooks. Some books in the library are written by famous authors. All books written by famous authors are kept on metal bookshelves. Based only on the above information, which of the following statements **must** be true?

- a) Some books on wooden bookshelves are written by famous authors.
- b) If a book is kept on a metal bookshelf, it is written by a famous author.
- c) No book written by a famous author is a textbook.
- d) Some textbooks are kept on metal bookshelves.

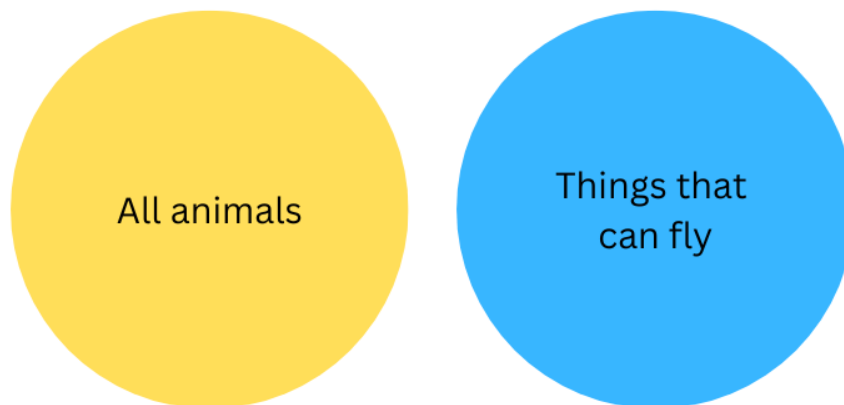
In a certain country, there are only two kinds of people: those who always tell the truth, and those who always lie. Every person either always tells the truth or always lies. Suppose Rajesh and Priya are from that country. Rajesh says: "At least one of us always lies". Based only on the above information, which of the following statements must be true?

- a) Rajesh always tells the truth.
- b) Priya always tells the truth.
- c) Rajesh and Priya always lie.
- d) Not enough information to determine the answer.

In a certain town, 70% of the residents own a car, 60% own a bicycle, and 50% own a motorcycle. Among those who own a car, 80% also own a bicycle, and among those who own a bicycle, 70% also own a motorcycle. Which of the following statements **must** be true?

- a) Some residents of the town own all three types of vehicles.
- b) Every resident of the town owns all three types of vehicles.
- c) More than 30% of the town's residents own none of the three types of vehicles.
- d) Less than 50% of the town's residents own two or more types of vehicles.

Some things that can fly are birds, bats, airplanes. We'll use a blue circle to represent all things that can fly and a yellow circle to represent all animals.



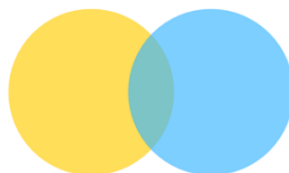
Which of the following pictures best shows the relationship between these two circles?



a)



b)



c)

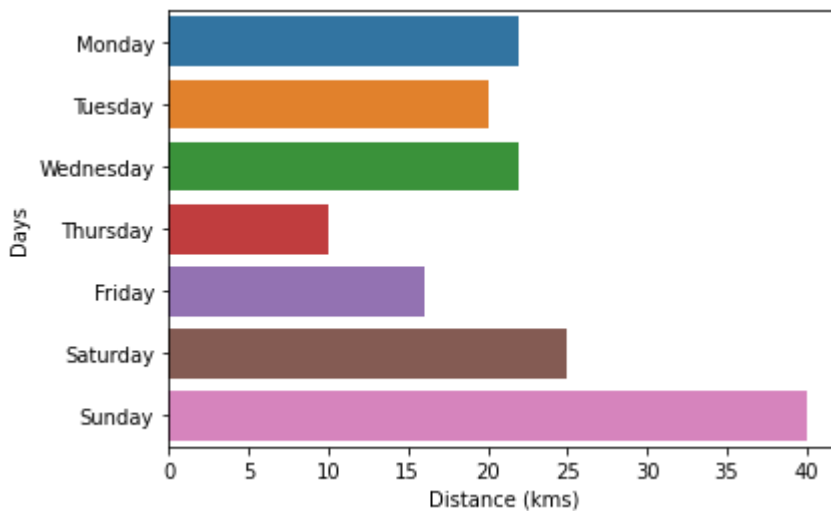


d)

Ayesha, a student in your class, says: "No one in this class is better than me at maths and sports". Her classmate Pranav disagrees with her statement. Which of the following claims must Pranav believe?

- a) There is someone in the class better than Ayesha at both maths and sports.
- b) Everyone in the class is better than Ayesha at both maths and sports.
- c) Everyone in the class is better than Ayesha either at maths or at sports.
- d) Ayesha is not very good at maths and sports.

The following graph shows the distance travelled by a cyclist on different days of the week.



Which of the following statements is true?

- a) The cyclist covered the maximum distance on Saturday.
- b) The cyclist traveled the minimum distance on Friday.
- c) The cyclist traveled the same distance on Monday and Wednesday.
- d) The distance traveled on Saturday was twice the distance traveled on Friday.

The following graph shows the daily wages earned by a female worker in a particular week in a town. The days of the week are on the X axis and the wages earned in rupees are on the Y axis.

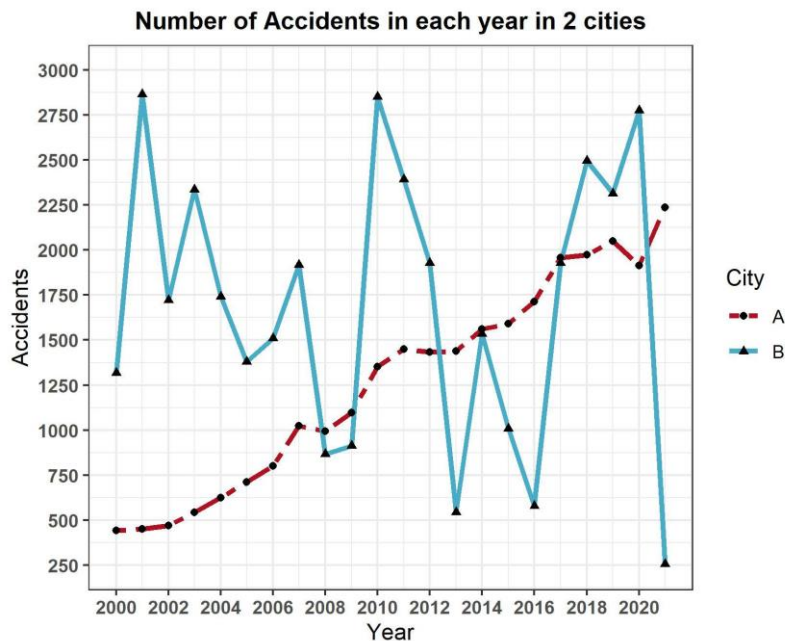


What is the difference between the highest and the lowest wages earned by her in that week?

- a) Rs 50
- b) Rs 75
- c) Rs 100

d) No difference

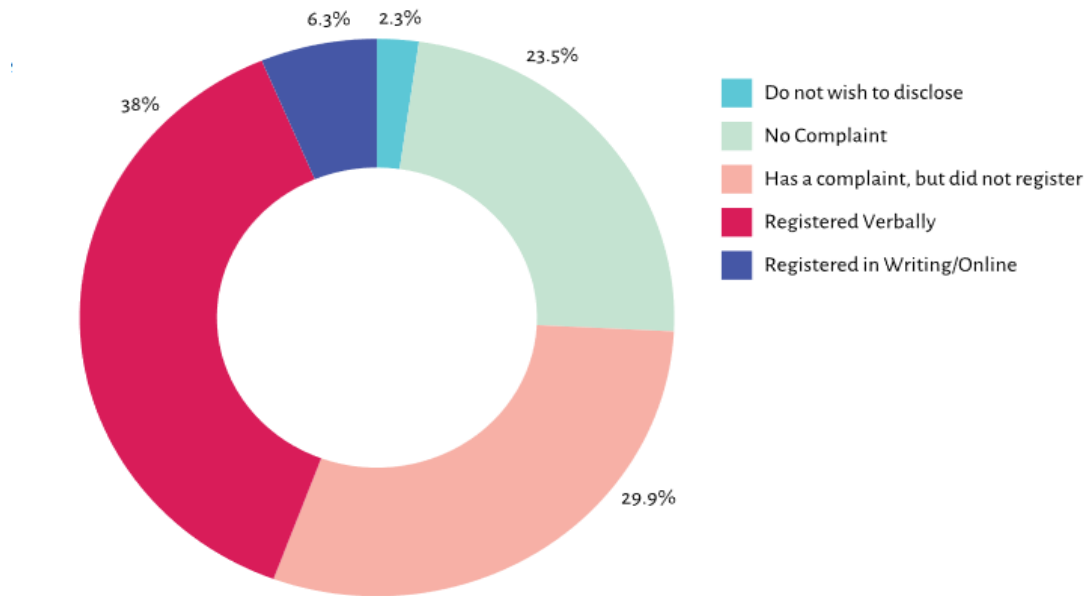
The following graph shows the number of accidents that have happened each year from 2000 to 2021 in two cities, A and B. The X axis shows the year and the Y axis shows the number of accidents in that year.



In which year did city A record its maximum number of accidents?

- a) 2020
- b) 2001
- c) 2011
- d) 2021

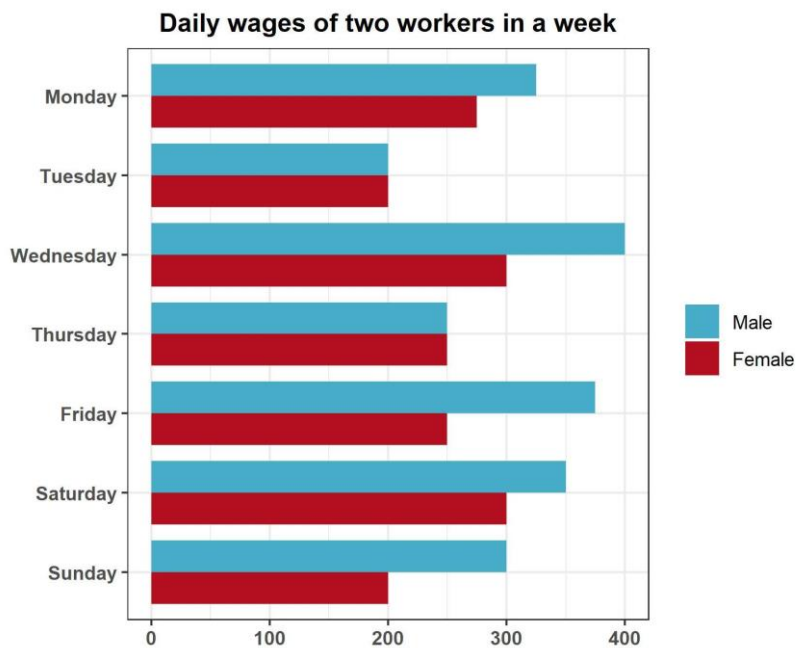
Several school students in a state were asked whether they have any complaints about their school buildings like the condition of the toilets, presence of teachers, etc. The students were also asked if they had registered their complaints officially. Each student had 5 options to choose from. Their responses are depicted in the graph below.



What percentage of students either registered verbally or registered in writing/online?

- a) 67.9%
- b) 44.3%
- c) 38%
- d) 6.3%

The following graph shows the daily wages of 2 workers – one female and one male – in a particular week in a town. The days of the week are shown in the y axis and the wages earned in rupees are shown on the x axis.



Which of the following statements is true?

- a) The female worker has earned less than the male worker every day of the week.
- b) The female worker has earned the same amount as the male worker everyday of the week.
- c) The female worker has earned the same as the male worker on 2 days of the week.
- d) The female worker has earned more than the male worker on 2 days of the week.

Humanities Domain MCQs: (English, History, Philosophy)

Read the passage carefully and then answer the questions below.

“While all sections of Indian political opinion deeply resented the Rowlatt Act, it was left to Gandhi to suggest a practicable form of all-India mass protest, going beyond petitioning but not intended to be unrestrained or violent. The plan initially was a rather modest one of volunteers courting arrest by public sale of prohibited works; it was extended by Gandhi on 23 March to include the novel and far more radical idea of an all-India *hartal* on 30 March (later postponed to 6 April). The brakes were there from the beginning, however: the *hartal* was deliberately fixed for a Sunday, and Gandhi explicitly declared that ‘employees who are required to work even on Sunday may only suspend work after obtaining previous leave from their employers’. He also rejected the Arya Samajist leader Swami Shraddhanand’s suggestion for a no-revenue call (‘Bhai Saheb! You will acknowledge that I am an expert in Satyagraha business!’) and urged the old Moderate leader Dinshaw Wacha to accept his programme with the argument that “the growing generation will not be satisfied with petitions, etc,... Satyagraha is the only way, it seems to me, to stop terrorism” (letter to Wacha, 25 February 1919).” Sarkar, S. (2014). *Modern India 1885-1947*. Pearson Education India. pp. 162.

What did all sections of Indian political opinion resent?

- a) Gandhi
- b) Rowlatt Act
- c) Swami Shraddhanand
- d) Dinshaw Wacha

What kind of protest plan was Gandhi left to devise?

- a) Violent protest
- b) All India mass protests
- c) Petition to the British
- d) None of the above

Who gave the suggestion for the no-revenue call?

- a) Dinshaw Wacha
- b) Swami Shraddhanand
- c) Pandit Jawaharlal Nehru
- d) Bhagat Singh

Who said, “You will acknowledge that I am an expert in Satyagraha business!”?

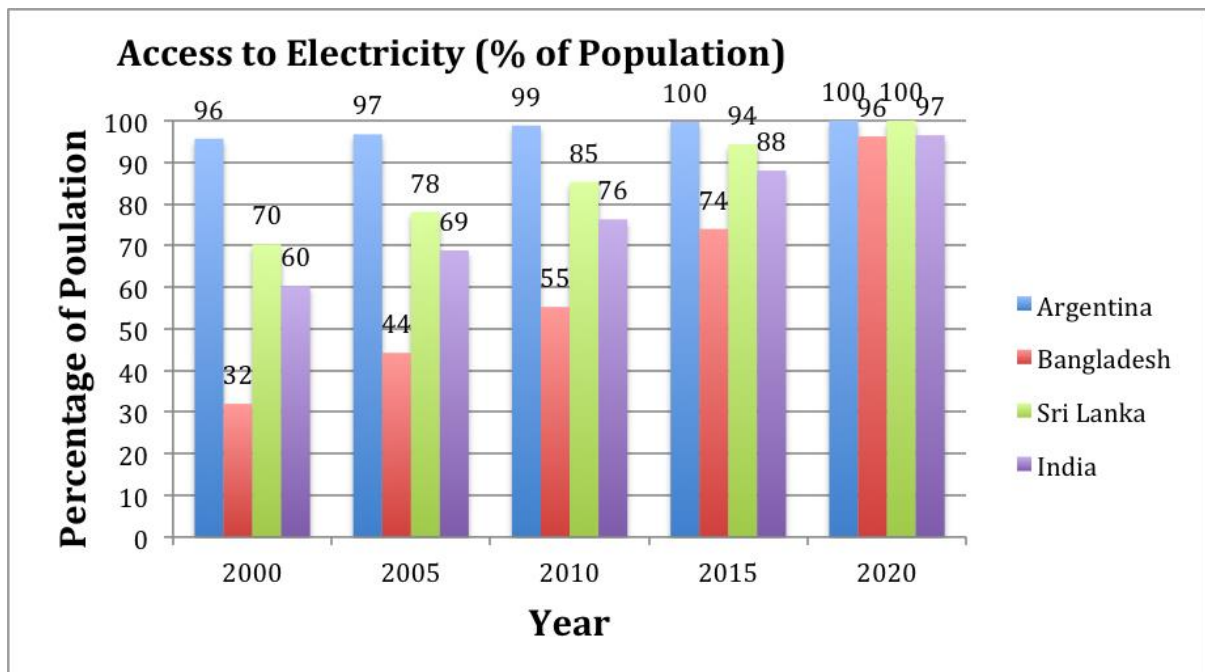
- a) Dinshaw Wacha
- b) Gandhi
- c) Both
- d) None of the above

Which of the Gandhian modes of protest have not been mentioned in the passage?

- a) Satyagraha
- b) Hartal
- c) Hunger strike
- d) Writing of protest petitions

Social Science Domain MCQs: (Economics and Social Science)

The following graph shows the percentage of population with access to electricity in four countries: Argentina, Bangladesh, Sri Lanka and India in the years 2000, 2005, 2010, 2015 and 2020. Use the graph to answer the three questions given below.



Source: World Development Indicators, The World Bank

In which of the following countries has the percentage of population with access to electricity recorded the largest increase between 2000 and 2015?

- a) Argentina
- b) Bangladesh
- c) Sri Lanka
- d) India

In which of the following countries the percentage of population with access to electricity has increased more than twice between 2000 and 2020?

- a) Argentina
- b) Bangladesh
- c) Sri Lanka
- d) India

Which of the following statements is true?

- a) Percentage of population with access to electricity has increased at an equal rate for all four countries between 2000 to 2020.
- b) Percentage of population with access to electricity in India has increased at a faster rate than Bangladesh between 2000 to 2020.
- c) Percentage of population with access to electricity in Argentina has increased at a faster rate than any other country.
- d) Percentage of population with access to electricity has remained the lowest in Bangladesh for all the years between 2000 to 2020.

Many young graduates in India do not have any job (or work) to do. That is, they are unemployed. Which of the following statements do you think is a good explanation of this?

- a) It is possible that most young people want to enjoy life, so they do not seriously try to find a job.
- b) It is possible that almost all the jobs require some years of work experience which young people often do not have, so they find it difficult to find a job.
- c) It is possible that the number of young graduates is far greater than the number of jobs that are suitable for graduates.
- d) It is possible that most of the Indian graduates come from rich families, so they anyway do not need to find a job.

private bank pays all their employees an equal amount of money (salary) based on their rank and experience. And yet, the women workers wrote a letter to the director of the bank. In this letter, they complained that the bank does not treat men and women equally. Which of the following is a possible explanation for this?

- a) Women think that they are treated unequally as compared to men in our society. So, to compensate for this injustice they deserve more salary than men.
- b) Often at home women must cook, so they feel more tired in the workplace as compared to the men. Therefore, even when women and men are doing equal amounts of work in the office, women think they are doing more work but getting paid less.
- c) The bank pays equal salary for the same rank and experience. However, most of the women workers are not in the same rank as that of the men.
- d) Equal salary for equal rank or experience does not necessarily mean men and women are treated equally in the workplace.

Science Domain MCQs: (Biology, Chemistry, Maths, Physics, BEd.)

A man walks 1 km to East and then he turns to South and walks 5 km. He then turns to the East again and walks 2 km. After this he turns to the North and walks 9 km. How far is he now from his starting point?

- a) 3 km
- b) 4 km
- c) 5 km
- d) 7 km

A radio needs two working AA batteries to function. You have seven identical AA batteries, of which 4 are dead and 3 are working. If you select two batteries randomly, what is the probability that the radio will function?

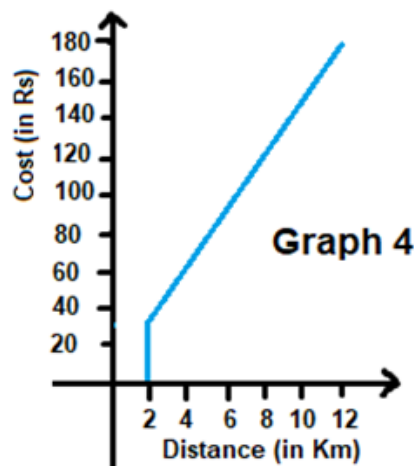
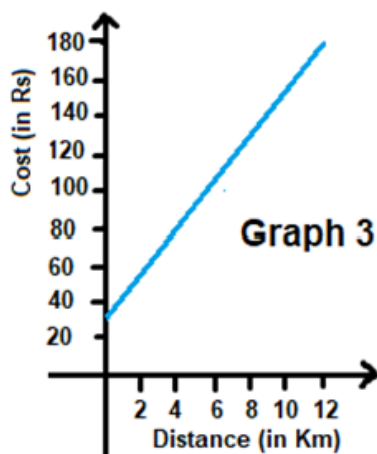
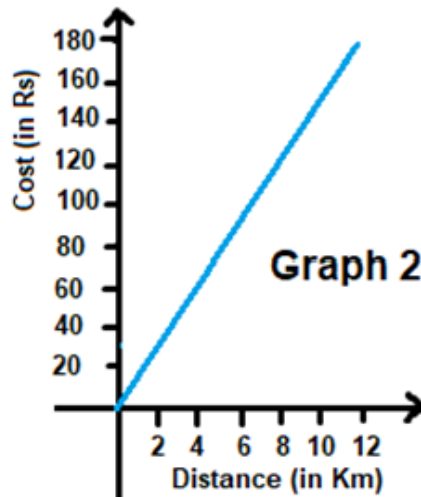
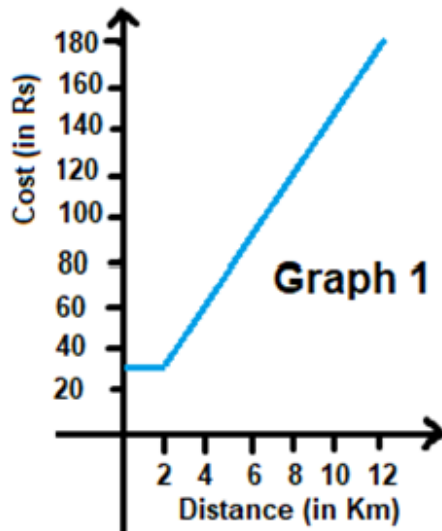
- a) $\frac{3}{7}$
- b) $\frac{6}{49}$
- c) $\frac{9}{49}$
- d) $\frac{1}{7}$

Which of these is the easiest way to find out if a ceiling fan will turn clockwise or anticlockwise when it is switched off?

- a) By checking if it is an AC or a DC fan
- b) By looking at the way the blades are bent
- c) By looking at the fan motor wattage

d) It is not possible to say until the fan is switched on

Auto fare in a city is determined as follows: There is a flat rate of Rs 30 for any distance between 0 and 2 km. After that, there is a charge of Rs 15 per kilometer. Which of the following graphs gives the best description of auto fare versus distance travelled?



- a) Graph 1
- b) Graph 2
- c) Graph 3
- d) Graph 4

A sweet shop makes (spherical) laddus and sells them by the kilogram. After the laddus are made, each one is wrapped completely with silver foil. The shopkeeper wants to reduce the cost of the silver wrapping. Which of the following is true?

- a) Making each laddu smaller will reduce the cost per kilogram
- b) Making each laddu bigger will reduce the cost per kilogram
- c) The size of the laddu does not change the cost

d) We do not have enough information to determine the answer

Descriptive Question

Instruction for Bengaluru candidates: Candidates applying to Bengaluru campus should type the answer on the screen in **English only**.

Instruction for Bhopal candidates: Candidates applying to Bhopal campus should write the descriptive answer on paper. You can write the answer in **English or Hindi**.

Read the following passage carefully and answer the question following it.

My cell phone beeped. It was a message from a friend, a link to an essay about thousands of people writing emails to trees in Melbourne. Civic authorities had given the city trees email addresses, and people were asked to report problems like ‘dangerous branches’. Instead, people began writing emails to their favourite trees, confiding secrets and insecurities, asking for counsel and compassion. The trees became letter boxes and shrinks. They became people.

(Extract from “The Silence of Trees” by Sumana Roy)

Question:

Write a letter to your favourite tree. What do you want to tell this tree? You can ask the tree questions, share ideas and stories, or tell it about your life.

Your answer should be 200 to 300 words long.

UG Question Paper_2024 R2_English

Reading Comprehension

Read the passage carefully and then answer the questions below.

In 1809, the British established a cantonment in Bangalore, when the city was part of the princely state of Mysore. This attracted Europeans, Anglo-Indians and Parsis to settle in the city although most of the original residents lived in the ‘old city’, which consisted of localities known as ‘pethes’. (Para 1)

All was well till 1897, when deaths from the bubonic plague, which had broken out in Bombay city, were detected in parts of Bombay Province that are now parts of Northern Karnataka. The colonial government lost no time in preparing for a pandemic. Besides invoking the Epidemic Diseases Act II of 1897, it allotted the princely sum of Rs 2,45,970 to the Plague Fund and appointed the Inspector General of Police V P Madhav Rao as the Plague Commissioner. But

the pandemic swept into Bangalore anyway, striking both the city and cantonment areas. It seems the plague had ridden in on a train of the Southern Maratha Railways. The train had pulled into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898. As a precaution, the railways had begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health. These passengers had to report for health checks for ten consecutive days. Among the passengers who had alighted at the station was a railway loco superintendent and his butler, the latter showing symptoms of the epidemic in a few days. The butler died of the plague on 15th August 1898. It wasn't long before the pandemic spread across the city. (Para 2)

Within nine days of the first plague death, several cases were reported from the Goods Shed areas. Twelve people died by 24th August. The next few days saw a surge in plague cases, and the number of deaths hit 2,665 by June 1899. There was panic all around. Hospital workers abandoned their duties and fled, and sweepers too went into hiding. An additional 348 plague deaths were reported from cantonment areas the following year. (Para 3)

The outbreak led to a mass exodus from Bangalore city, as people took refuge in rural areas and small towns. The population of Bangalore almost halved by December 1899. For those who stayed behind, life was miserable. The prices of essential goods skyrocketed while people were penniless as there was no work. (Para 4)

Despite the hardships that the pandemic had inflicted, there was a silver lining. The government realized that Bangalore's infrastructure had to be modernized to avoid a health crisis in future. The government spent a ransom to modernize the city's drainage system. Large-scale disinfection, covering thousands of houses, was carried out. The Health Department inspected every house, identified buildings without proper ventilation and arranged for ventilation either by removing parts of the roofs or drilling large holes in them! Building regulatory norms were framed and made mandatory for all future constructions. (Para 5)

("Bengaluru: A Phoenix that Rose from the Plague" by Dinesh Nayak, *Live History India*, April 2021.)

Which of the following was **not** part of preparation done by the government to handle the pandemic?

a) Invoking the Epidemic Diseases Act II of 1897

- b) Allocation of a sum of Rs 2,45,970 to the Plague Fund
- c) Appointment of Inspector General of Police V P Madhav Rao as the Plague Commissioner
- d) Establishment of Bangalore Cantonment

Which of the following statements is **not** true about the effect of pandemic on residents of Bangalore?

- a) There was a huge emotional effect on the residents.
- b) There were no jobs in the city and people became poor.
- c) Bodies of dead persons were lying all over deserted areas.
- d) The population of the city decreased due to the migration of people to nearby villages.

Paragraph 2 has the sentence “Among the passengers who had alighted at the station was a railway loco superintendent and his butler, the latter showing symptoms of the epidemic in a few days.” Which of the following modified sentences conveys the same meaning as this one?

- a) Among the passengers who had alighted at the station was a butler and a railway loco superintendent, the latter showing symptoms of the epidemic in a few days.
- b) Among the passengers who had alighted at the station was a railway loco superintendent and his butler, the former did not show any symptoms of the epidemic in a few days.
- c) Among the passengers who had alighted at the station was a railway loco superintendent and his butler, the former showing symptoms of the epidemic in a few days.
- d) Among the passengers who had alighted at the station was a butler and a railway loco superintendent, the former showing symptoms of the epidemic in a few weeks.

Which of the following is **not** the correct word to replace “penniless” in the statement: “The prices of essential goods skyrocketed while people were penniless as there was no work” in paragraph 4?

- a) Moneyless
- b) Destitute
- c) Opulent
- d) Indigent

Why is 11th August of 1898 significant?

- a) The arrival of the first identified plague patient from Bombay.
- b) The Bangalore Cantonment Station officially opens.
- c) The loco superintendent appoints a new butler.
- d) The Hubli-Bombay railway line is inaugurated.

What steps comprised initial attempts at containing the plague in Bangalore?

- a) Affected people were quarantined in “pethes”, away from the old city.
- b) Checks were undertaken at primary health centers across the city.
- c) Europeans, Anglo-Indians and Parsis arrived to volunteer their efforts.
- d) Legislative measures and allocation of funds for controlling the outbreak.

Read paragraph 3 closely. How can one best describe the plague situation as characterized here?

- a) Frustrating
- b) Alarming
- c) Annoying
- d) Hopeful

If “exodus” means a mass migration out of the city, what would you call its opposite?

- a) Discharge
- b) Outflow
- c) Influx
- d) Effluence

What does the word “refuge” mean, in the context of the article?

- a) A shelter from danger
- b) Disinfection measures

- c) A positive side-effect
- d) A situation that is worse than earlier

Which of the following options shows a correct joining of these two sentences:

The train had pulled into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898. The railways had begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health.

- a) Due to the train pulling into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898, the railways had nevertheless begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health.
- b) When the train pulled into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898, the railways had already begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health.
- c) As soon as the train had pulled into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898, but the railways had begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health.
- d) Although the train had pulled into the Bangalore Cantonment Station from Bombay via Hubli on 11th August of 1898, the railways had only begun physically screening passengers, and a police constable would escort them to their destinations, to keep tabs on their health.

Read the passage carefully and then answer the questions below.

The powerful 7.8 magnitude earthquake that struck Turkey and Syria on February 6, 2023 killed almost 50,000 people, most of whom died under rubble. The immediate cause of the human tragedy was not the shaking ground itself, but the buildings people were in, most of which were constructed of reinforced cement concrete, a relatively quick and cheap building method. (Para 1)

Earthquakes don't have to be so deadly, say scholars who study this issue. Many traditional buildings have stood the test of time in regions that have endured high seismic activity for centuries. (Para 2)

In Japan, people had long built earthquake-resistant structures mostly from wood. But a different tradition shows that even stone buildings can withstand vigorous shaking—if they are built with clever physics and architectural adaptations, honed over the centuries. (Para 3)

In the mountainous region of Himachal Pradesh in India, near where the Indian Plate is colliding with the Eurasian Plate, many structures built in the *kath kuni* style have survived at least a century of earthquakes. In this traditional building method, the name, which translates to “wood corner,” in part explains the method: Wood is laced with layers of stone, resulting in improbably sturdy multi-story buildings. (Para 4)

It is one of several ancient techniques that trace fault lines across Asia. The foundations for the timber lacing system of architecture may have originally been laid in Istanbul around the fifth century. Stone masonry and wood-beam construction can still be seen in Nepal as well as in the traditions of Kashmiri *Taq* and *Dhajji Dewari* and Pakistani *Bhatar*. Even Turkey has a long tradition of similar construction methods. Despite their ancient origins, this model of construction has mostly fared better over centuries than much of the contemporary building across the continent’s many active seismic zones. (Para 5)

Built along the natural contours of the hills, *kath kuni* buildings typically get their signature corners from giant deodar cedars, which grow upward of 150 feet tall and 9 feet across in the Himalayas. These wooden beams layer between dry stones, which create walls. A single wooden “nail” joins the beams where they come together. (Para 6)

As the ponderous-looking structures rise vertically, usually up to two to three stories, the heavy stone masonry reduces, giving way to more wood. The overhanging roof typically has slate shingles resting on wooden beams. “The structure is like a body with heavy base, the projecting wooden balconies are limbs, and the heavy slate roof is like a head adding stability to the structure,” says Jay Thakkar, a faculty member at the Centre for Environmental Planning and Technology University in Ahmedabad, India, who co-authored the book *Prathaa: Kath-kuni Architecture of Himachal Pradesh*. (Para 7)

The buildings stand free of any mortar or metal, which makes them more capable of shifting and flexing along with torques in the ground. While a building constructed out of what seems almost like rubble to begin with might seem a strange defense against earthquake damage, it works. The gravitational force of the structure itself holds the stones in place. “Unlike the

cement brick wall, which becomes a single solid mass, the dry stone masonry is flexible,” Thakkar says. (Para 8)

Despite centuries of visible evidence of these traditional structures’ soundness, people have turned more and more to reinforced concrete construction. By the early and mid-20th century, reinforced concrete was taking hold across Asia and quickly gained popularity because of its substantially lower labor costs. As such, it became the default method for much new construction, including any government-funded buildings. But “for reinforced concrete construction, poor quality construction in this material has so often produced buildings that are more dangerous than the traditional unreinforced masonry buildings they replaced, despite the promises made about concrete buildings,” wrote a team of researchers studying traditional timber and masonry buildings in Turkey. (Para 9)

The onus now lies on practicing architects and researchers to convince government agencies to support the traditional system of construction, which could help contain destruction the next time an earthquake rocks the region, which, as the geologic plates continue to collide, is only a matter of time. (Para 10)

(670 words, Adapted from “The Ancient Architecture that Defies Earthquakes” by Shoma Abhyankar, *Nautilus*, April 2023.)

Which of the following is **not** described as an earthquake-resistant building practice?

- a) Wooden structures
- b) Walls made with both stone and wood
- c) Walls made of metal or mortar
- d) Houses made of dry stone masonry

What purpose do the references to Japanese and Indian architecture serve in the article?

- a) The comparison shows how Japanese architecture has influenced earthquake-defiant buildings in India.
- b) By comparing East Asian and South Asian architecture, the author can claim to be unbiased.
- c) It establishes how traditional Asian architecture was miles ahead of the rest of the world.
- d) The differences between the two are used to introduce the concept of dry stone masonry.

According to Jay Thakkar, what causes the “flexibility” of *kath kuni* architecture?

- a) The rigidity of the brick and cement walls.
- b) The age of the wood - older wood results in sturdy structures.
- c) The interlacing of wood and stone in the walls.
- d) The overhanging roof and wooden beams.

How does paragraph 5 contribute to the main argument of the paper?

- a) It offers examples to support the concept of wood laced structures, introduced in the previous paragraph.
- b) It introduces the idea of *kath kuni*, which is explained in the paragraph that follows.
- c) It uses examples to disprove the effectiveness of reinforced cement concrete in making earthquake-resistant buildings.
- d) It proves that traditional practices in Nepal, Pakistan and Kashmir are similar to the ones in Istanbul.

Read this sentence from paragraph 9: “Despite centuries of visible evidence of these traditional structures’ soundness, people have turned more and more to reinforced concrete construction.”

How does the passage explain this choice by the public?

- a) The low cost of constructing a concrete building as opposed to a traditional one.
- b) To meet the standards set by government-funded buildings built with reinforced concrete.
- c) Concrete buildings were too popular for people to resist the trend.
- d) The low demand for labour forced workers into reinforced concrete construction.

Paragraph 10 ends with the phrase, “only a matter of time”. Which inevitable event is being referred to here?

- a) The collision of tectonic plates
- b) An earthquake
- c) An earthquake that causes buildings to collapse
- d) The carelessness of government agencies

According to the author, whose responsibility is it primarily to ensure the return to traditional forms of architecture?

- a) Wood workers
- b) Government agencies
- c) The public
- d) Architects and researchers

In paragraph 3, the word “vigorous” is used to describe an earthquake. Which of the following words **does not** accurately describe an earthquake?

- a) Devastating
- b) Formidable
- c) Unforeseen
- d) Tranquil

Read this sentence from paragraph 4: “Wood is laced with layers of stone, resulting in improbably sturdy multi-story buildings.”

Which of the following words can replace “improbably” without changing the meaning of the sentence?

- a) Extremely
- b) Strongly
- c) Improperly
- d) Impossibility

In this article, which **one** of the following ideas are asserted more than the others?

- a) It brings to light the human tragedy of lost lives and livelihoods that every earthquake leaves behind.
- b) It refutes the common understanding that wood is the most earthquake-resistant building material.
- c) It explains, using scientific reasoning, the preeminence of earlier methods of construction.
- d) It concludes that the increasing reliance on concrete buildings is a recipe for disaster.

Quantitative Reasoning

Tarun and Karan bought an apartment by investing in a ratio of 2:3 respectively. After three years, they sold the same for 3.5 crore rupees and shared the profit (in the same ratio). If Tarun made a profit of 20 lakhs, how much did they buy the land together for?

- a) 3 crores
- b) 2.5 crores
- c) 2.8 crores
- d) 3.2 crores

The angles of a triangle are in the ratio 2:3:4. Then the measure of the smallest of the three angles is

- a) 60°
- b) 40°
- c) 100°
- d) 90°

Tanvi drives her car from home to the office. If she drives at a speed of 30 km/hr, she arrives at the office 10 minutes late. However, if she drives at a speed of 45 km/hr, she arrives at the office 10 minutes early. How long does it take for her to reach her office if she is driving at 60km/hr from home?

- a) 20 minutes
- b) 15 minutes
- c) 60 minutes
- d) 30 minutes

In a city, the auto-rickshaw fare is fixed at Rs 40 for the first 2 km and Rs 15 for every kilometer thereafter. If an auto-rickshaw driver in the city follows this rule, what is the fare for 8 km?

- a) 90 rupees
- b) 120 rupees
- c) 130 rupees
- d) 150 rupees

The average weight of two sheep in a farm is 33 kg. If their weights are in the ratio 4:7, then the weight of the heavier one is

- a) 30 kg
- b) 24 kg
- c) 36 kg
- d) 42 kg

If CALICUT is coded as ECNKEWV, how is MADURAI coded?

- a) OBFVTBK
- b) OCFWTCK
- c) OZETTCK
- d) LBCVQBH

Shringa has some oranges with her. She gave three-fifths of her oranges to Kanthi. Then, Kanthi gave two-fifths of what she got from Shringa to Kaif. If Kaif got 30 oranges, how many are left with Kanthi finally?

- a) 30
- b) 50
- c) 45
- d) 25

A firm guarantees a return amount of Rs. 70,000 after a lock in period on an investment of Rs. 50,000. If they are providing simple interest at 8% per annum, then what is the lock-in period?

- a) 2 years
- b) 5 years
- c) 4 years
- d) 8years

20 people can build a house in 36 days. The number of people required to build the same house in 24 days is (assuming efficiency of each worker is the same)

- a) 30
- b) 25

- c) 35
- d) 32

A train of length 150 meters crosses a pole in 5 seconds. What is the speed of the train?

- a) 100 km/hr
- b) 120 km/hr
- c) 112 km/hr
- d) 108 km/hr

In a library, there are only two types of bookshelves: wooden and metal. The library has textbooks and books written by famous authors. Some textbooks are kept on wooden bookshelves. All books written by famous authors are kept on metal bookshelves.

Based only on the above information, which of the following statements **must** be true?

- a) Some books on wooden bookshelves are written by famous authors.
- b) If a book is kept on a metal bookshelf, it is written by a famous author.
- c) No books written by a famous author are textbooks.
- d) Some books on metal bookshelves are written by famous authors.

In a certain country, there are only two kinds of people: those who always tell the truth, and those who always lie. Every person either always tells the truth or always lies. Suppose Rajesh and Priya are from that country. Rajesh says: "I always lie and Priya always tells the truth".

Based only on the above information, which of the following statements must be true?

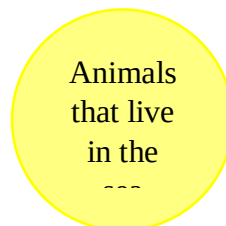
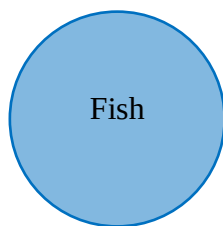
- a) Rajesh always tells the truth.
 - b) Priya always tells the truth.
 - c) Rajesh and Priya always lie.
 - d) Not enough information to determine the answer.
-

In a certain town, 30% of the residents own a car, 70% own a bicycle, and 50% own a motorcycle. Among those who own a car, 80% also own a bicycle, and 70% also own a motorcycle.

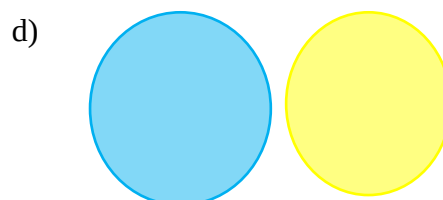
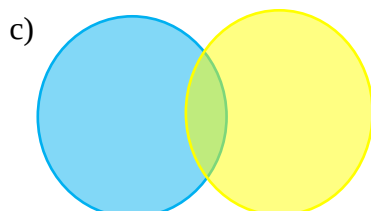
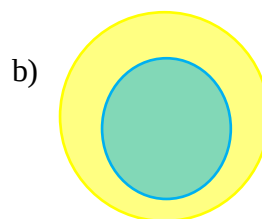
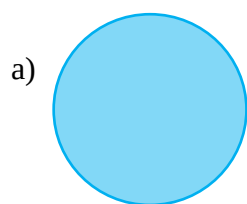
Which of the following statements **must** be true?

- a) No residents of the town own all three types of vehicles.
 - b) Every resident of the town owns all three types of vehicles.
 - c) More than 30% of the town's residents own none of the three types of vehicles.
 - d) The number of residents who own a motorcycle is greater than the number of residents who own both a car and a bicycle.
-

We'll use a blue circle to represent fish and a yellow circle to represent animals that live in the sea.



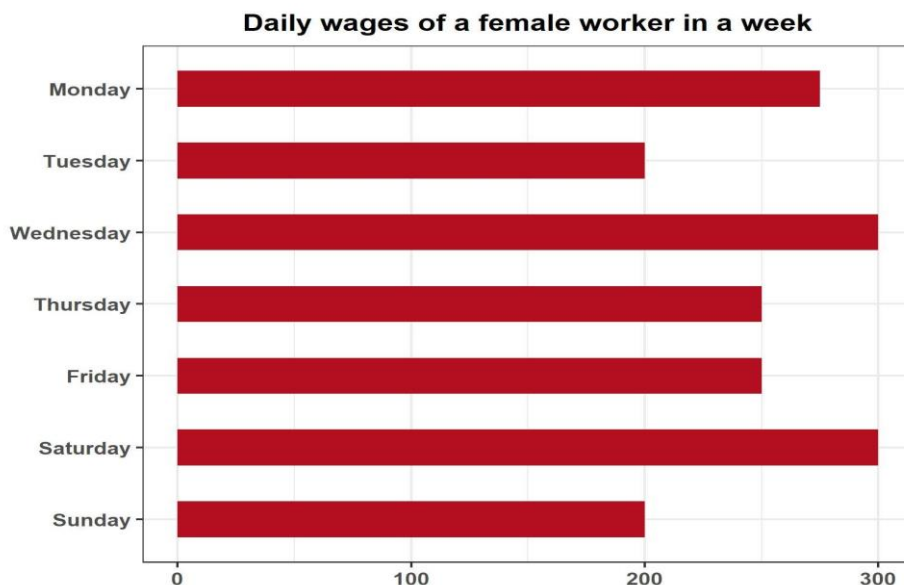
Which of the following pictures best shows the relationship between these two circles?



Ayesha, a student in your class, says: "No one in this class is better than me at either maths or sports". Her classmate Pranav disagrees with her statement. Which of the following claims must Pranav believe?

- a) Everyone in the class is better than Ayesha at both maths and sports.
- b) Everyone in the class is better than Ayesha at sports.
- c) There is someone in the class better than Ayesha either at maths or at sports.
- d) Ayesha is not very good at maths or sports.

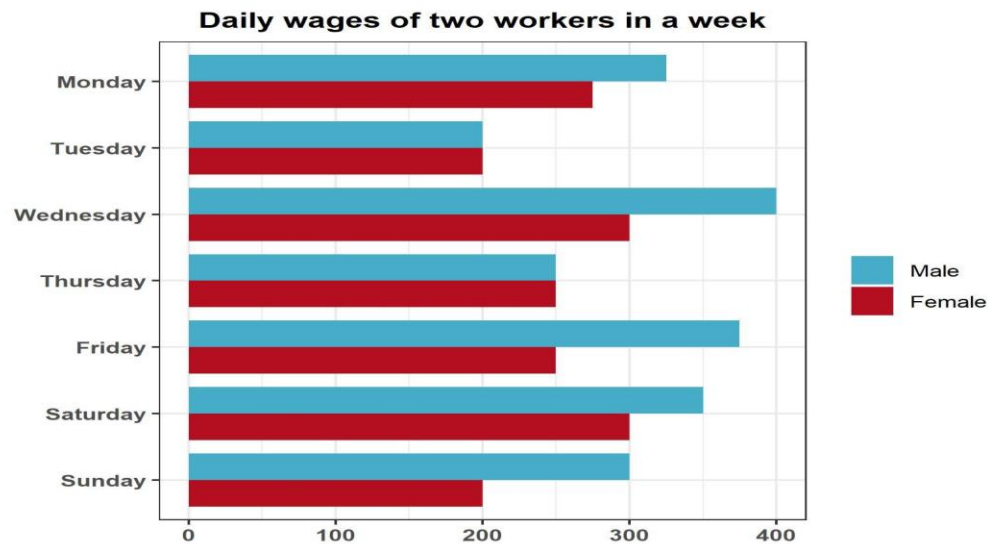
The following graph shows the daily wages earned by a female worker in a particular week in a town. The days of the week are on the y axis and the wages earned in rupees are on the x axis



Which of the following is true

- a) She earned the least amount on Monday and Saturday
- b) She earned the most amount on Sunday
- c) She earned the least amount on Wednesday
- d) She earned the same amount everyday

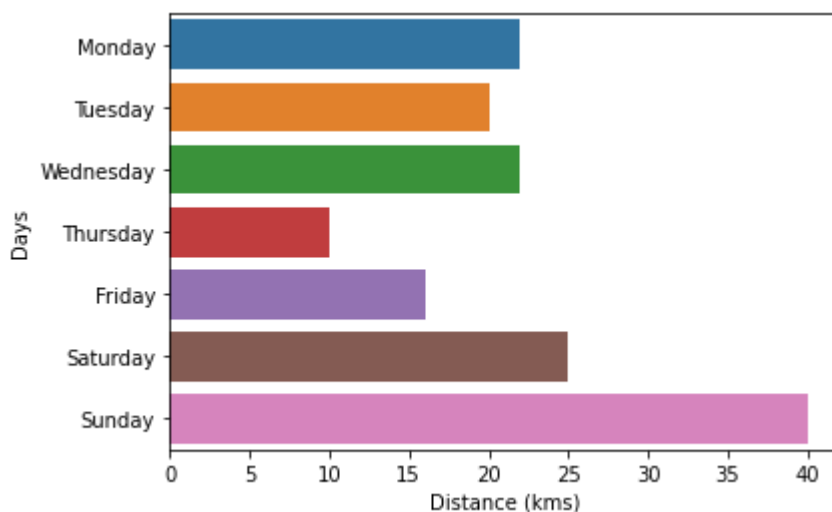
The following graph shows the daily wages of 2 workers – one female and one male – in a particular week in a town. The days of the week are shown in the y axis and the wages earned in rupees are shown on the x axis.



The maximum difference in the wages earned between the male worker and the female worker happened on which day?

- a) Monday
- b) Wednesday
- c) Friday
- d) Sunday

The following graph shows the distance travelled by a cyclist on different days of the week.

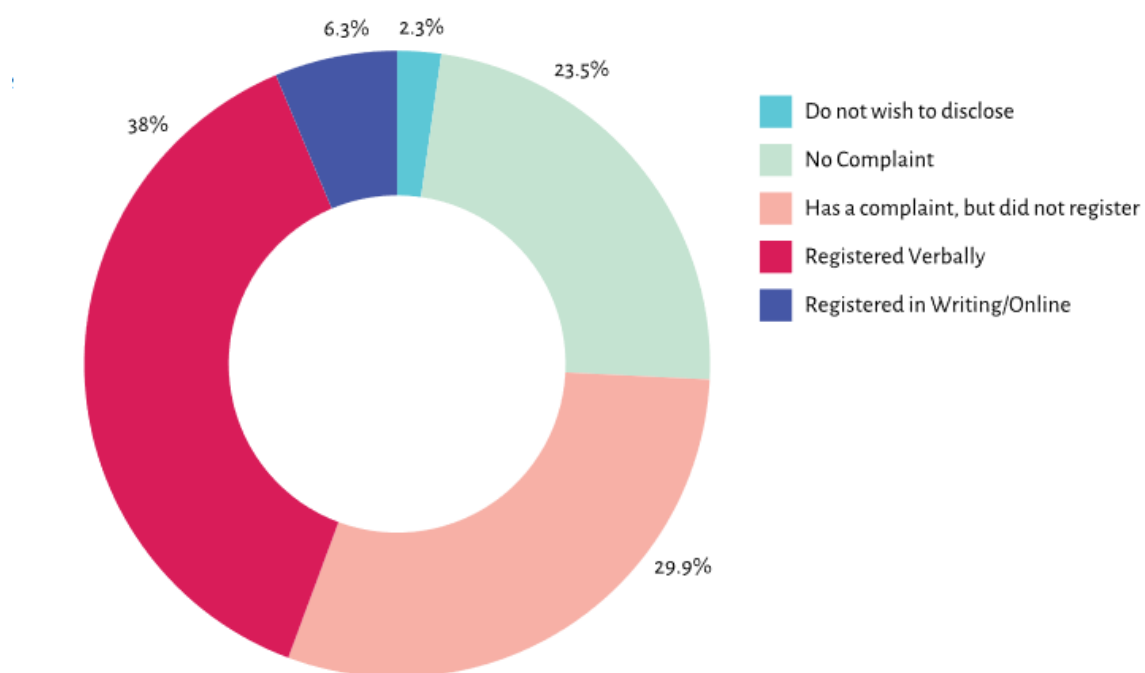


What is the difference between the maximum and minimum distances traveled by the cyclist?

- a) 29
- b) 30

- c) 31
d) 25

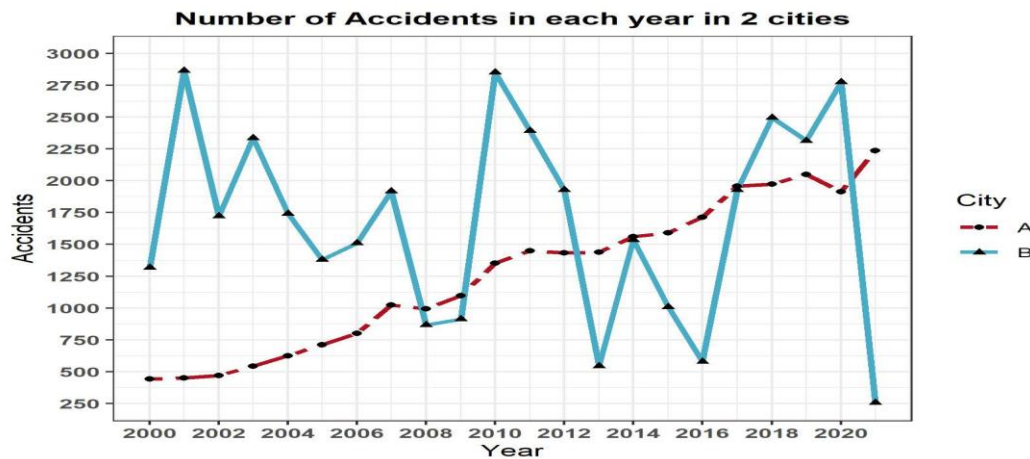
Several school students in a state were asked whether they have any complaints about their school buildings like the condition of the toilets, presence of teachers, etc. The students were also asked if they had registered their complaints officially. Each student had 5 options to choose from. Their responses are depicted in the graph below.



What percentage of students said they had a complaint but did not register?

- a) 29.9%
b) 38%
c) 42%
d) Can't say from the graph.

The following graph shows the number of accidents that have happened each year from 2000 to 2021 in two cities, A and B. The x axis shows the years and the y axis shows the number of accidents.



In which year was the difference in the number of accidents in the two cities the maximum?

- a) 2001
- b) 2021
- c) 2011
- d) 2016

Humanities Domain (English, History, Philosophy)

Read the passage carefully and then answer the questions below.

Buddhism created and developed a new awareness in the field of intellect and culture. It taught the people not to take things for granted but to argue and judge them on merits. To a certain degree, the place of superstition was taken by logic, promoting rationalism among people. In order to preach the doctrines of the new religion, the Buddhists compiled a new type of literature, enormously enriching Pali by their writings. Early Pali literature can be divided into three categories. The first contains the sayings and teachings of the Buddha, the second deals with the rules to be observed by members of the sangha, and the third presents a philosophical exposition of the dhamma. In the first three centuries of the Christian era, by blending Pali and Sanskrit, the Buddhists created a new language which is called Hybrid Sanskrit. The literary activities of the Buddhist monks continued even in the Middle Ages, and some famous Apabhramsa writings in east India were composed by them. The Buddhist monasteries developed as great centres of learning.

Mention may be made of Nalanda and Vikramashila in Bihar, and Valabhi in Gujarat. Buddhism left its mark on the art of ancient India. The first human statues worshiped in India were probably those of the Buddha. Faithful devotees of the religion portrayed the various

events in the life of the Buddha in stone. The panels at Bodh-Gaya in Bihar and at Sanchi and Bharhut in MP are illuminating examples of artistic activity. From the first century onwards, panel images of Gautama Buddha began to be made. The Greek and Indian sculptors worked together to create a new form of art on the north-west frontier of India known as Gandhara art. The images made in this region betray Indian as well as foreign influence.

Sharma, R.S. (2006). *India's Ancient Past*. Oxford University Press. pp. 142-43.

Buddhism created and developed a new awareness in the field of

- a) Trade and commerce
- b) Politics and administration
- c) Intellect and culture
- d) Social service

Which language was enriched by the writings of the Buddhists?

- a) Greek
- b) Latin
- c) Tamil
- d) Pali

An important Buddhist monastery was situated in Bihar at

- a) Nalanda
- b) Valabhi
- c) Taxila
- d) Ellora

Which of the following is a Buddhist site?

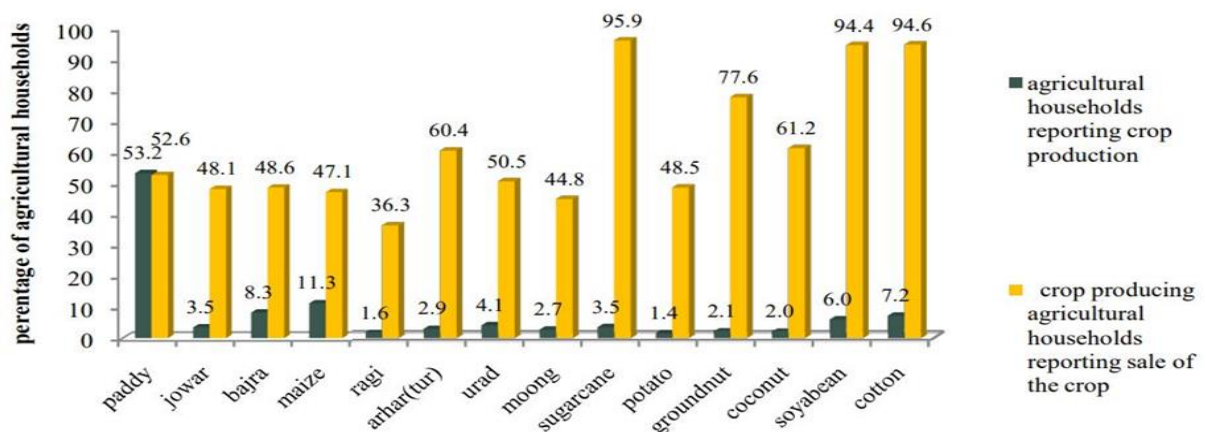
- a) Sanchi
- b) Bodh Gaya
- c) Bharhut
- d) All of these

A form of art that developed on the north-western frontier of India and became evident in many images of the Buddha is called

- a) Mathura art
- b) Amaravati art
- c) Gandhara art
- d) Ajanta art

Social Science Domain (Economics and Social Science)

The following figure represents the percentage of agricultural households reporting crop production and percentage of crop producing agricultural households reporting sale of the crops



Which crop is least chosen by agricultural households for production?

- a) Ragi
- b) Moong
- c) Paddy
- d) Potato

Which crop is chosen the most for production by agricultural households?

- a) Cotton
- b) Sugarcane
- c) Paddy
- d) Soyabean

Which crop has the highest reporting of sale by agricultural households.

- a) Paddy
- b) Maize
- c) Sugarcane
- d) Cotton

A recent report shows that in India, when the husband's income is low, the wife has a higher chance of being employed. Which of the following do you think is a possible reason for this?

- a) When the husband's income is low, they are unable to purchase more food items.
Therefore, the wife does not have to spend a lot of time cooking. She can use her free time to do a job.
- b) When the husband's income is low, they do not stay with their parents. Therefore, the wife does not have to take care of her in-laws and has more free time which she can use to do a job.
- c) When the husband's income is low, they are not able to dominate their wives. Therefore, the wife can enjoy more freedom and go out to do a job.
- d) When the husband's income is low, their family is more likely to be poor and facing financial difficulties. Therefore, the wife has to work to earn money for the family.

Imagine a small town. Its residents have been living together for generations. Most of them attend the same events, celebrate the same festivals, and share the same beliefs. This shared way of life has helped them bond with each other and develop a common understanding of the world. Which of the following terms best describes this shared way of life and the beliefs, values, and practices of a community?

- a) Urbanisation
- b) Village life
- c) Culture
- d) Migration

Science Domain (Biology, Chemistry, Maths, Physics, BEd.)

In the first 10 overs of a cricket game, the run rate (that is, the number of runs per over) was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs?

- a) 6.25
- b) 6.5
- c) 6.75
- d) 5

25% of the students in a college study science. One in every five of these students studies physics. Given that a student studies science, what is the probability that they study physics?

- a) $1/25$
- b) $1/20$
- c) $1/5$
- d) $1/4$

We have ten poles of equal weight. We are told the following two facts:

Statement I: One-fourth of the weight of each pole is 5 kg.

Statement II: The total weight of three poles is 20 kilograms more than the total weight of two poles. Which of the following is true?

- a) We can find the total weight of the poles with Statement I, but not with Statement II
- b) We can find the total weight of the poles with Statement II, but not with Statement I
- c) Either Statement I or Statement II is sufficient to find the total weight of the poles
- d) Neither Statement I nor Statement II is sufficient to find the total weight of the poles.

During a flood, the inhabitants of a village were exposed to contaminated water. One of the children was later diagnosed with dysentery. The timeline of the child's disease is as follows -

Day 0 - exposed to contaminated water

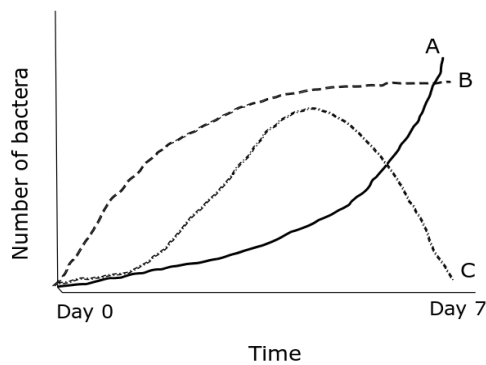
Day 3 - vomiting and fever

Day 4 - fever, diarrhoea

Day 5 - medicated for dysentery

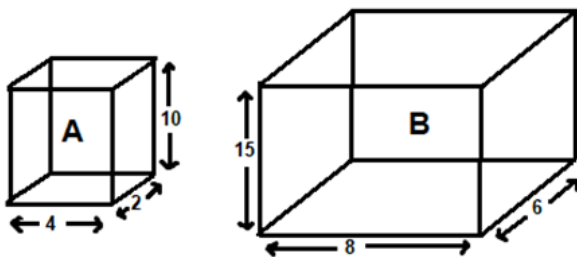
Day 7 - recovery

Which of the following curves best represents the change in concentration of the disease-causing bacteria in the child's gut?



- a) Curve A
- b) Curve B
- c) Curve C
- d) Can be either A or B

Two empty open cuboidal containers are left out in the rain. Container A has length 4 cm, width 2 cm and height 10 cm. Container B has length 8 cm, width 6 cm, and height 15 cm. After the rain ends, container A contains 4.8 cubic centimetres of water. How much water does container B have?



- a) 28.8 cm^3
- b) 4.8 cm^3
- c) 720 cm^3
- d) 0.1 cm^3

Descriptive Question

Read the following passage carefully and answer the question following it.

“That’s the thing with handmade items. They still have the person’s mark on them, and when you hold them, you feel less alone.” — Aimee Bender, *The Color Master: Stories*

Question:

Imagine that you are planning to make a small artwork (painting, sketch or collage) as a gift for your favorite teacher in your old school. Describe in detail the artwork that you would like to create.

Your answer should be 200 to 300 words long.

UG Question Paper_2024 Bhopal English

Reading Comprehension

Read the following passage carefully and answer the question following it.

Persuasion is the art of convincing someone to agree with your point of view. According to the ancient Greek philosopher Aristotle, there are three basic tools of persuasion: ethos, pathos, and logos. [Para 1]

Ethos refers to “the appeal to credibility”. It refers to the reputation or how credible the speaker is. When it comes to ethos, one important consideration is how the speaker presents themselves to the audience: Does it seem like they know what they are talking about? Are they an expert? Do they have some experience or skills that tell us we should listen to them? Ethos is important because it often influences the opinion or mood of the audience. If a speaker seems unprepared or inexperienced, the audience is not going to believe the speaker’s argument. [Para 2]

On the other hand, a knowledgeable and confident speaker is much more likely to win an audience over. A speaker’s word choice, grammar, and language also contribute to ethos. Ethos can also be influenced by nonverbal factors as well, such as posture, body language, eye contact, and even the speaker’s choice of clothing. Here is a simple example of ethos: “As a former minister, I believe we can solve this crisis if we work together.” The speaker uses ethos by alerting the audience of their credentials and experience. By doing so, they rely on their reputation to be more persuasive. [Para 3]

Pathos refers to “the appeal to emotion.” An author or speaker is using pathos when they are trying to persuade an audience by causing some kind of emotional reaction. When it comes to pathos, any and all emotions are on the table: sadness, fear, hope, joy, anger, pity, etc. Both positive and negative emotions can heavily influence an audience: for example, an audience

will want to support a speaker whose position will make them happy, a speaker who wants to end their sadness, or a speaker who is opposed to something that makes them angry. [Para 4]

Here is a simple example of pathos - “Every day, the rainforests are getting destroyed and innocent animals are killed. We must do something about this calamity before the planet we call our home is damaged beyond repair.” Here, the author is trying to win over an audience by making them feel sad, concerned, or afraid. The author’s choice of words like “innocent” and “calamity” enforce the fact that they are trying to rely on pathos. [Para 5]

Logos is often referred to as “the appeal to reason.” If a speaker or author relies on logos, they typically cite facts or provide evidence for their argument. Logos does away with all the methods of ethos and pathos and straightforwardly presents a rational argument. Logos can be effective in arguments because it is impossible to argue against truth and facts. An audience is more likely to agree with a speaker who can provide strong, factual evidence that shows their position is correct. A speaker who presents a lot of supporting evidence and data to the audience is likely to come across as knowledgeable and someone to be listened to, which can help the speaker establish their ethos as well. [Para 6]

Here is a simple example of logos - “According to market research, sales of computers have increased. If the trend continues then the market is going to grow further.” In this example, the author is using evidence, data, and logic to make their argument. They hope to use logos to convince an audience to agree with them. [Para 7]

While ethos, pathos, and logos are all useful alone, they are most effective when used together. Most speakers rely on a combination of ethos, pathos, and logos to persuade their audience. [Para 8]

(Adapted from “Understand the Difference Between Ethos, Pathos, And Logos to Make Your Point”, Thesaurus.com – January, 2022)

Questions

Which of the following is **not** a requirement for ethos?

- a) How the speaker presents themselves to the audience.

- b) The kind of language the speaker uses.
- c) The reason and the evidence used by the speaker.
- d) The speaker's body language, posture, clothing, etc.

What does pathos refer to?

- a) How the speaker appears to the audience.
- b) The authority and the expertise of the speaker.
- c) The reasons and the evidence provided by the speaker.
- d) The emotional reaction that the speaker is trying to evoke in the audience.

According to the text, logos refers to

- a) Appeal to credibility
- b) Appeal to emotion
- c) Appeal to reason
- d) Appeal to ignorance

According to the passage, logos can build ethos because

- a) Logos requires audience to understand the reason and evidence which requires the speaker to exercise ethos.
- b) By presenting reason and evidence, the speakers become more credible for the audience.
- c) Only relying on pathos makes the audience too emotional and the audience will get too sad or angry.
- d) Ethos and Logos are more related to each other than Ethos and Pathos.

What according to the text is most effective of the three persuasion tools?

- a) Ethos, because it is only possible to persuade an audience if they think you can be trusted.
- b) Pathos, because audience only is persuaded by emotions.
- c) Logos, because without reason and evidence you cannot establish the truth.
- d) A combination of Ethos, Pathos, and Logos.

Ram is running to become a minister. Ram says the following to the audience:

“The data shows that the water in this district is contaminated. Around 1000 people last year got ill by drinking this water. Doesn’t this make you sad? Your innocent children are getting harmful diseases. As a water conservation activist, I know what needs to be done to make the water supply drinkable. Therefore, you should vote for me.”

What tools of persuasion is he using –

- a) Ethos, Pathos, and Logos
- b) Ethos and Pathos
- c) Pathos and Logos
- d) Logos and Ethos

Suppose you want to persuade your father to buy you a cricket bat. You tell him “I really need this cricket bat. All my friends have their own bat and if I do not have one, they all will laugh at me.”

What tool of persuasion are you using –

- a) Ethos
- b) Pathos
- c) Logos
- d) A combination of Ethos and Pathos

Suppose I want to persuade you that you should brush your teeth. I tell you that “brushing teeth keep them healthy, healthy teeth mean that they will stay strong and not decay. If teeth decay, then you will feel pain.”

What tools of persuasion am I using –

- a) Logos
- b) Ethos
- c) A combination of Ethos and Pathos
- d) A combination of Logos and Pathos

If you believe a doctor over your friend about how to cure your illness, which tool of persuasion are you agreeing with?

- a) Ethos
- b) Pathos
- c) Logos
- d) None of the above

Which of the following is the antonym (opposite) of the word 'credible' as used in paragraph 2?

- a) Interesting
- b) Amazing
- c) Boring
- d) Doubtful

Read the passage carefully and then answer the questions below.

The word "subcontinent" used to describe the South Asian landmass highlights the fact that it is a natural physical region separate from the rest of Eurasia. To the north, the series of mountain ranges collectively known as the Himalayas form a belt about 2,500 kilometers in length and between 200 and 400 kilometers in width, beyond which lies the arid and high Tibetan plateau. The combination of inhospitable plateau and formidable mountain barrier has largely sealed off access to the subcontinent from the north. The Arabian Sea in the west and the Bay of Bengal in the east, bodies of water that comprise part of the larger Indian Ocean, surround much of South Asia and provide it with a coastline of approximately 8,500 kilometers. Hills run between the mountains and the ocean at both ends of the subcontinent, to its west and to its east, serving to further demarcate the subcontinent's boundaries and impede entry into it. South Asia - that is, the modern nations of Pakistan, India, Nepal, Bhutan, and Bangladesh on the subcontinent, along with the large island nation of Sri Lanka - is set apart from the rest of the world by these various natural geographical features, and its identity as a discrete world region appears logical to us. [Para 1]

If we look back in history, however, it is clear that there was constant movement into and out of the subcontinent. The geographic features that clearly define South Asia as a physical region by no means sealed it off from the rest of the world. A lively sea traffic connected the coasts of India with the Persian Gulf and Red Sea during the height of the Roman empire, while maritime contact with mainland Southeast Asia was established by at least the fourth century

CE. Overland routes into the subcontinent from the northwest were accessible enough that Alexander the Great could lead a large army into the Punjab during the fourth century BCE. To be sure, there was less overland traffic over the Himalayas, although Buddhism and other aspects of Indian culture did diffuse into the Tibetan plateau during the medieval period. Likewise, the eastern land corridor seems to have been little used: the eastern extremities of the subcontinent were sparsely inhabited (as was the adjoining territory in modern Myanmar) and lay outside the cultural and political perimeters of Indian civilization until 500 or less years ago. [Para 2]

From a historical perspective, the western and eastern boundaries of South Asia as a cultural and political region appear quite different from the current national borders that separate Pakistan from Afghanistan and Iran to the west, on the one hand, and India and Bangladesh from Myanmar to the east, on the other. Not until well into the period we are covering in this book did Bangladesh become incorporated into the South Asian sphere. The situation in the west is even more ambiguous. The area of Afghanistan and even parts of Central Asia were several times in the distant past included in a polity based in South Asia. The cultural impact of Indian civilization was similarly felt far outside South Asia's current limits during much of the first millennium CE: Buddhism flourished throughout Afghanistan and Central Asia, while the North Indian Brahmi script was adapted to several Central Asian languages such as Khotanese and Tocharian. For these reasons alone, one could make a strong case that Afghanistan is (or at least once was) an integral part of South Asia, rather than the Middle East, in cultural and political terms. [Para 3]

We have gone into this point at some length because history books today routinely characterize any people whose origins lie to the west of Pakistan as "foreign" to South Asia and their large-scale movements toward the southeast as "invasions" of the subcontinent. The Khyber Pass in northern Pakistan and the Bolan Pass in southern Pakistan are typically described as the weak points in South Asia's defenses which have repeatedly been penetrated by foreign invaders. This mindset ignores the many interconnections over the millennia across the terrain that is now divided up between the countries of Afghanistan, Pakistan, and India. Instead, it projects backward into the past a geo-political reality that took shape only at the very end of the nineteenth century, after the British proved incapable of extending their control westward to a line that ran on a north-south diagonal through the Afghan cities of Kabul, Ghazni, and Qandahar. Historically, there was far more contact and communication between the people

living around Delhi and Kabul, separated by only 1,000 kilometers, than between the major cities of north and south India, separated by 2,000 kilometers or more; even Mumbai is 1,400 kilometers distant from Delhi. [Para 4]

In other words, the coherence of South Asia as a world region in our current perception is largely a legacy of British colonialism. The British were the first and only political power to ever extend their sway over all of South Asia and the limits of their dominion now define the boundaries of the region. The large size of the subcontinent, the varied nature of its physical environments, and the great diversity of its human population in language, ethnicity, and mode of subsistence - made it impossible for any pre-colonial polity to conquer, much less govern. [Para 5]

Adapted from Catherine B. Asher and Cynthia Talbot, *India before Europe* (Cambridge: Cambridge University Press, 2006), pp. 5-8.

Questions:

According to the author, the word “subcontinent” serves to highlight that

- a) South Asia is a natural physical region.
- b) South Asia is a natural physical region separate from the rest of Eurasia.
- c) South Asia is a natural physical region contiguous with the rest of Eurasia.
- d) South Asia is not a continent.

The Himalayas separate the Indian subcontinent from which of the following regions?

- a) Gangetic plains.
- b) South-east Asia.
- c) Pakistan and Afghanistan.
- d) Tibetan plateau.

In the second paragraph, according to the author, what becomes clear if we look back in history?

- a) There was no movement into and out of the subcontinent.
- b) The subcontinent was constantly moving.
- c) There was constant movement into and out of the subcontinent.

d) There was no such thing as an Indian subcontinent.

During the height of the Roman empire, what facilitated the connection between the coasts of India and the Persian Gulf and Red Sea?

- a) Overland routes
- b) Himalayan passages
- c) Maritime traffic
- d) Eastern land corridor

As per the second paragraph, which region remained thinly populated and beyond the cultural and political boundaries of Indian civilization until relatively recently?

- a) Punjab
- b) Southeast Asia
- c) Tibetan plateau
- d) Eastern extremities of the subcontinent

According to the author, “the western and eastern boundaries of South Asia as a cultural and political region appear quite different from the current national borders that separate Pakistan from Afghanistan and Iran to the west, on the one hand, and India and Bangladesh from Myanmar to the east” when we see things from an

- a) Economic perspective
- b) Political perspective
- c) Historical perspective
- d) Environmental perspective

What historical evidence does the passage provide to support the idea that Afghanistan could be considered an integral part of South Asia?

- a) The current national borders separating Afghanistan from Pakistan and Iran.
- b) The incorporation of Bangladesh into the South Asian sphere.
- c) Buddhism flourishing in Afghanistan and Central Asia during the first millennium CE.
- d) The ambiguous situation in the west with regards to South Asia.

According to the passage, what is the significance of the North Indian Brahmi script in the context of South Asian cultural influence?

- a) It was exclusively used within the current borders of South Asia.
- b) It had a limited impact on the cultural sphere of South Asia.
- c) It was adapted to several Central Asian languages such as Khotanese and Tocharian.
- d) It primarily influenced the Middle Eastern region.

Why does the text emphasize the historical contact between the people around Delhi and Kabul?

- a) To highlight the military strategies employed by these regions.
- b) To challenge the perception of foreign invasions in South Asia.
- c) To underscore the geographical proximity between the two cities.
- d) To criticize the British colonial influence in Delhi and Kabul.

What role does the text attribute to British colonialism in defining the boundaries of South Asia?

- a) It argues that British colonialism was unsuccessful in extending its control over South Asia.
- b) It suggests that British colonialism contributed to the cultural unity of South Asia.
- c) It contends that British colonialism was the first and only power to dominate the entire region.
- d) It states that British colonialism had minimal impact on shaping the perception of South Asian history.

General: Quantitative Reasoning

In a library, there are only two types of bookshelves: wooden and metal. All the textbooks are kept on wooden shelves, and no other books are kept on wooden shelves. Some books written by famous authors are not kept on metal shelves. All books are kept on wooden or metal shelves.

Based only on the above information, which of the following statements **must** be true?

- a) Some books on wooden bookshelves are written by famous authors.
- b) If a book is kept on a metal bookshelf, it is written by a famous author.

- c) No books written by a famous author are textbooks.
- d) None of the books on metal bookshelves are written by famous authors.

In a certain country, there are only two kinds of people: those who always tell the truth, and those who always lie. Every person either always tells the truth or always lies. Suppose Rajesh is from that country and says: "Either I always lie or else two plus two equals four".

Based only on the above information, which of the following statements must be true?

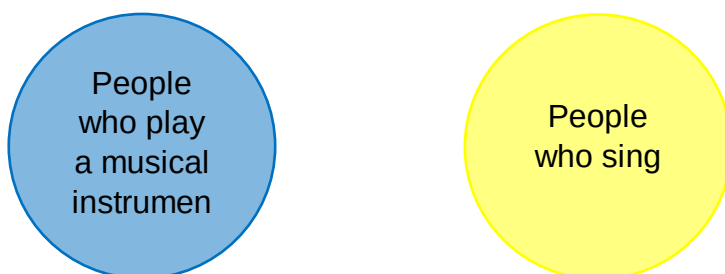
- a) Rajesh always tells the truth.
- b) Rajesh always lies.
- c) Rajesh always tells the truth and lies.
- d) Not enough information to determine the answer

In a certain town, 30% of the residents own a car, 10% own a bicycle, and 60% own a motorcycle.

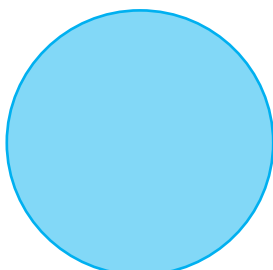
Which of the following statements **must** be true?

- a) All residents of the town own at least one vehicle.
- b) 10% of the town's residents own all three types of vehicles.
- c) The majority of the town's residents own at least one vehicle.
- d) Some residents of the town own a motorcycle and a bicycle.

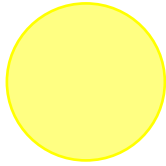
We'll use a blue circle to represent people who play a musical instrument and a yellow circle to represent people who sing.



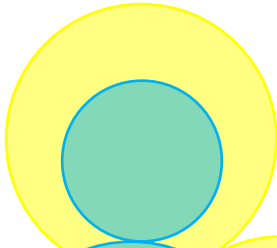
Which of the following pictures best shows the relationship between these two circles?



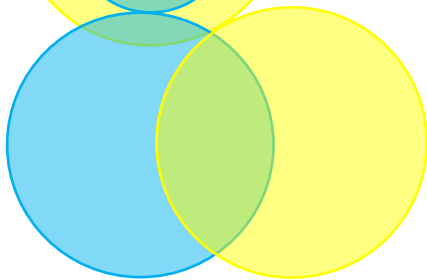
a)



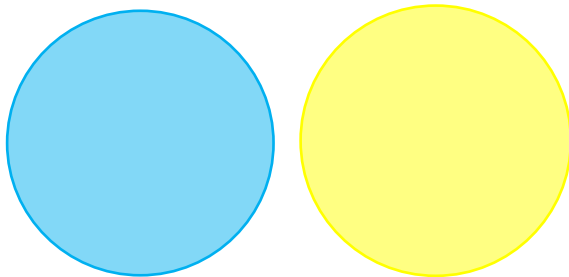
b)



c)



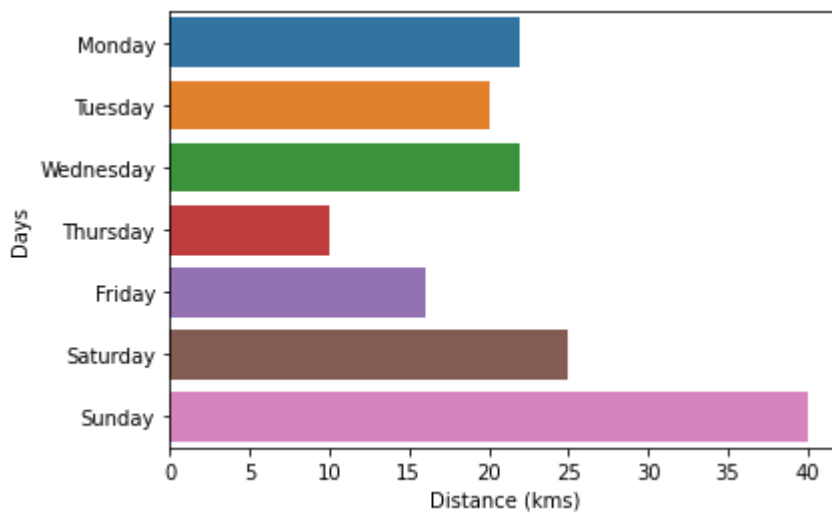
d)



Ayesha, a student in your class, says: "There is at least one person in this class who is better than me at both maths and sports". Her classmate Pranav disagrees with her statement. Which of the following claims must Pranav believe?

- a) No one in the class is better than Ayesha at both maths and sports.
- b) Everyone in the class is better than Ayesha at both maths and sports.
- c) No one in the class is better than Ayesha either at maths or at sports.
- d) Ayesha is not very good at maths and sports.

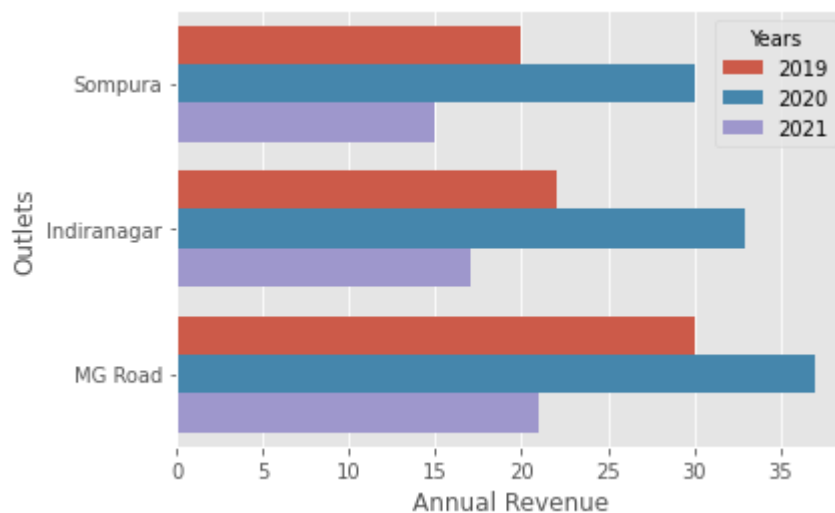
The following graph shows the distance traveled by a cyclist on different days of the week.



What is the ratio of the distance covered on Thursday to the distance covered on Sunday?

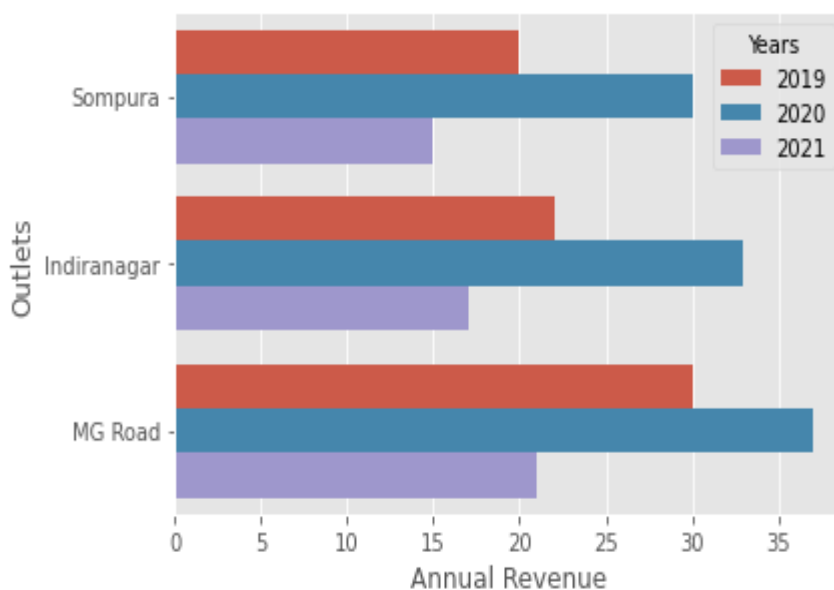
- a) 4:1
- b) 1:4
- c) 1:40
- d) 1:2

The following graph contains information about the annual revenue of three outlets of a restaurant chain for two years. Based on this information, which outlet had the largest absolute revenue decline between 2019 and 2021?



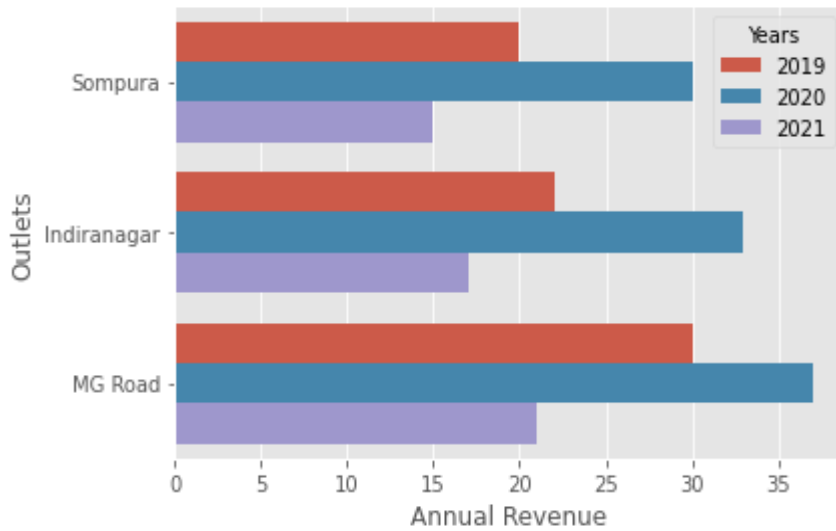
- a) Sompura.
- b) Indiranagar.
- c) MG Road.
- d) Insufficient information to answer the question.

The following graph contains information about the annual revenue of three outlets of a restaurant chain for two years. Based on this information, which of the following statements is **false**?



- a) Between 2019 and 2020, revenue increased in all outlets.
- b) Between 2019 and 2021, revenue declined in all the outlets.
- c) Sompura outlet was the second best revenue collector in all three years.
- d) MG Road had the best revenue collection in all three years.

The following graph contains information about the annual revenue of three outlets of a restaurant chain for two years. Based on this information: Which outlet had the slowest revenue growth rate in 2020?



- a) Sompura.
- b) Indiranagar.
- c) MG Road.
- d) Can't be answered.

The following graph contains information about the annual revenue of three outlets of a restaurant chain for two years. Based on this information, the difference between annual revenues of Sompura and Indiranagar outlets,



- a) Increased between 2019 and 2020.
- b) Decreased between 2019 and 2020.

- c) Remained constant between 2019 and 2020.
- d) None of the above

A cricket team won 7 matches out of the total number of matches they played. If the win percentage is 20, then the number of matches they lost in all is

- a) 15
- b) 14
- c) 18
- d) 21

The ratio of the sides of two squares is 3:5. If the length of the first square is 18 cm, then find the area of the second square (in square cm) is?

- a) 225
- b) 400
- c) 625
- d) 900

The average age of a family of four members is 35 years. If the ages of three members are 48, 45, and 22 years, what is the age of the youngest member?

- a) 18 years
- b) 20 years
- c) 22 years
- d) 25 years

A car travelling at 70 km/hr stops after two and a half hours due to a breakdown. If the destination is 45 km away from this location, what is the distance between the starting point and the destination?

- a) 220 km
- b) 210 km
- c) 200 km
- d) 160 km

A shopkeeper sold a watch at a profit of 20%. If the cost price was Rs. 2400/- then at what price was the watch sold?

- a) Rs. 2800
- b) Rs. 2880
- c) Rs. 3000
- d) Rs. 3120

Machine A takes 12 minutes to print 100 pages. Machine B is twice as efficient as Machine A. Then the time taken to print 200 pages is:

- a) 6 minutes
- b) 12 minutes
- c) 18 minutes
- d) 24 minutes

The simple interest on a certain amount of money for 2 years at the rate of 8% per annum is Rs. 1600. What is the principal amount?

- a) Rs. 10000
- b) Rs. 12000
- c) Rs. 8000
- d) Rs. 6000

Arrange the square roots of the following numbers in descending order: $3\sqrt{2}$, $\sqrt{9}$, $2\sqrt{6}$, $3\sqrt{5}$.

- a) $3\sqrt{5}$, $2\sqrt{6}$, $3\sqrt{2}$, $\sqrt{9}$
- b) $3\sqrt{5}$, $3\sqrt{2}$, $2\sqrt{6}$, $\sqrt{9}$
- c) $3\sqrt{2}$, $3\sqrt{5}$, $2\sqrt{6}$, $\sqrt{9}$
- d) $3\sqrt{2}$, $2\sqrt{6}$, $3\sqrt{5}$, $\sqrt{9}$

If the speed of a bullet train is 240 km/hr then the (approximate) speed in m/s is:

- a) 50

- b) 67
- c) 74
- d) 93

A firm guarantees a return amount of Rs. 70,000 on investment of Rs. 50,000 with simple interest of 8% per annum. What is the lock in period?

- a) 2 years
- b) 5 years
- c) 3.5 years
- d) 8 years

Descriptive Question

Instruction:

- Your answer should be 200 to 300 words long.

Read the following passage carefully and answer the question following it.

It was the first lesson of the day, and the room, filled with forty-five girls, bristled with restlessness. Sister Josephine, the headmistress, had announced at morning assembly that the school fête would be held next month, and the girls were distracted, silently planning what they would wear, which stalls they would visit.

(Extract from “Secret Corridors” by Janice Pariat.)

Question:

In the passage, the students are excited because of an upcoming celebration in their school. Can you carefully describe a similar experience in your life? What was the celebration you were waiting for?

