

Azim Premji University

Undergraduate Programmes

Admission Test - Sample Paper

Time : 90 minutes

Read the following passage and answer questions 1 to 5 that are based on this passage

Even 65 years after Independence, more than a million families in India live in darkness after sunset. They do not have any electricity connection in their homes. They also do not have the money to invest in alternative sources of energy such as solar power. A much larger section of the population, nearly half of rural India, have electricity connections but suffer from irregular supply. They depend on kerosene to address their power needs.

In 2000-01, the government started a programme to offer solutions at subsidized prices. Under the Remote Village Electrification Programme (RVEP), the Ministry of New and Renewable Energy offers a solar home lighting system (SHS). It is a simple kit consisting of one or two CFL bulbs, a solar panel, a battery and a solar charge regulator. For many, this SHS was a blessing. It saved them their regular spending on kerosene to get four or five hours of electricity a day. The target of the programme was to reach 18,000 households. As of 2013, it had covered nearly 9,000 villages. In the process it has encountered a number of problems. The biggest is poor after-sale service, followed by malfunctioning batteries and bulbs.

Such initiatives to help households without electricity are not implemented by the government alone. In recent years, NGOs and private organizations have also begun offering these lighting options and the necessary financial help to these under-served households. These schemes offer hope for the country's power shortages, but are limited in their scope. The RVEP is seen only as a temporary solution until households in remote areas receive electricity connections. Although this is not the only solution. The possibility of setting up mini-solar power connection systems on a large-scale must be explored.

Adapted From: <http://www.downtoearth.org.in/content/let-solar-shine>

1. According to this passage, nearly half of rural India:
 - A. Has regular electricity supply
 - B. Has irregular electricity supply from alternative electricity sources
 - C. Has irregular electricity supply
 - D. Has irregular electricity supply only after sunset
2. The Solar Home Lighting System Consists of
 - A. Two CFL bulbs and a solar panel
 - B. Two CFL bulbs, a solar panel, a battery and a solar charge regulator
 - C. A solar panel, a battery, and a solar charge regulator
 - D. Two CFL bulbs, a battery, and a solar charge regulator
3. The biggest problem in the implementation of the RVEP is:
 - A. Poor after-sale service
 - B. Malfunctioning batteries and bulbs
 - C. Lack of political will
 - D. Insufficient funding
4. According to this passage, the government should think about solar power systems as a means of:
 - A. Getting people to stop depending on kerosene for power
 - B. Meeting people's needs in the absence of regular electricity supply
 - C. Encouraging people to conserve the environment
 - D. Improving people's economic lives
5. On the basis of this passage, we can conclude that:
 - A. India's power shortage problems cannot be solved
 - B. Solar power systems alone can effectively solve India's power shortage problems
 - C. A combination of solutions is necessary to solve India's power shortage problems
 - D. India has no power shortage problems

Read the following passage and answer questions 6 to 10 that are based on this passage

When we watch films we always know the names of the actors who act in them. But do we know the names of sound and light technicians, and the make-up artists? Some people like the carpenters who make the sets are not even mentioned in the credits. Yet, without all these people films could not be made.

Large numbers of people work in India's film industry. Like any industry, the workers there are part of unions. For instance, the dancers, stunt artists and the extras are all part of a junior artists association, whose demands include 8 hours shifts, proper wages and safe working conditions. Very often, people who work in this industry, as in any other, live in the same city. However, depending on who they are and how much they earn, they do very different things in that city. Film stars and textile mill owners live in certain areas, while junior artists and textile workers may live in others. Some eat at five star hotels, while some eat at local handcarts. How and where people work and what kind of jobs they have is an important part of who they are.

Changes in the economy and technology have certainly changed relations of work in India - in terms of the kinds of work that are available, and the number of jobs that are available. At the same time however, caste, personal contacts, gender and region also influence how work gets organized and how products get sold. For instance, why are there more women in jobs like nursing or teaching than in engineering? Is this just a coincidence? Is it because society thinks that men and women are suited for different kinds of work?

Thus, when trying to understand any society, it is important to know who produces what, who works where, who sells to whom and how.

6. According to this passage, which of the 4 statements are true?
 - A. Make-up artists have the biggest contribution to the success of films
 - B. Films can be made without the efforts of sound and light technicians
 - C. Film-making depends on the effort of actors, make-up artists, technicians, and carpenters
 - D. Carpenters who make sets are included in the credits of films
7. According to this passage, changes in the economy and technology in India have caused:
 - A. People to lose interest in films
 - B. People to become more serious about work
 - C. An increase in the number of jobs and the kinds of work available
 - D. An increase in the number of teachers and nurses
8. According to this passage, workers unions in the film industry demand
 - A. 8 hour shifts, proper wages, and safe working conditions
 - B. Free tickets for watching films
 - C. Change in labour laws
 - D. 6 hour shifts
9. According to this passage:
 - A. Caste and gender have no influence on how work gets organised in India
 - B. Gender is the main the factor that influences changes in technology and the organisation of work in India
 - C. Caste and gender along with changes in technology influence how work gets organised in India
 - D. Only caste influences how work gets organised in India
10. On the basis of this passage, we can conclude that:
 - A. Understanding caste is important for understanding films
 - B. It is not important to know who produces what and who lives where
 - C. It is important to know who produces what, who lives where, and who sells to whom to understand any society well
 - D. It is important to know who produces what, who lives where, and who sells to whom to be a good person

Read the following paragraphs (adapted from RK Narayan's 'A Horse and Two Goats') and try to answer questions 11 to 15. The glossary below the passage gives meanings for some of the more difficult words

He sat on an upturned packing case below the platform of the shop. The shopman paid no attention to him. Muni kept clearing his throat, coughing, and sneezing until the shopman could not stand it any more and demanded, "What ails you? You will fly off that seat into the gutter if you sneeze so hard, young man." Muni laughed, in order to please the shopman, at being called "young man". The shopman was pleased and said, "You have enough of the imp inside to keep a second wife busy, but for the fact the old lady is still alive." Muni laughed appropriately again at this joke. It completely won the shopman over; he liked his sense of humour to be appreciated. Muni engaged his attention in local gossip for a few minutes, which always ended with a reference to the postman's wife who had eloped to the city some months before.

By thus humouring the shopman, Muni could always ask for one or two items of food, promising repayment later. Some days the shopman was in a good mood and gave in, and sometimes he would lose his temper suddenly and bark at Muni for daring to ask for credit. This was such a day, and Muni could not progress beyond two items listed as essential components. The shopman was also displaying a remarkable memory for old facts and figures and took out an old ledger to support his observations. Muni felt impelled to rise and flee. But his self-respect kept him in his seat and made him listen to the worst things about himself. The shopman concluded, "If you could find five rupees and a quarter, you will have paid off an old debt and then could apply for admission to swarga. How much have you got now?"

"I will pay you everything on the first of the next month."

"As always, and whom do you expect to rob by then?"

Muni felt caught and mumbled, "My daughter has sent word that she will be sending me money."

"Have you a daughter?" sneered the shopman. "And she is sending you money! For what purpose, may I know?"

"Birthday, fiftieth birthday," said Muni quietly.

Glossary:

Ails : troubles

Humouring : being nice to

Impelled : forced

Appropriately : suitably

Imp : a mischievous fellow

11. How was Muni trying to please the shopman?

- A. By telling him jokes.
- B. By laughing at his jokes.
- C. By talking to him about his second wife.
- D. By sneezing and falling into the gutter.

12. Who was called a "young man"?

- A. The shopman
- B. Muni
- C. The postman
- D. No one in the passage

13. Why was Muni trying to please the shopman?

- A. Because he liked the shop.
- B. Because he wanted some items on credit.
- C. Because he wanted only two essential items.
- D. Because he liked the shopman.

14. The passage is about:
- A. Muni's daughter and the shopman
 - B. The shopman's sense of humour
 - C. Muni's fiftieth birthday
 - D. Muni trying to get some items on credit from the shopman
15. The story is told from
- A. The author's point of view
 - B. Muni's point of view
 - C. The shopman's point of view
 - D. None of the above

Instruction for Q 16: A statement may be true or false. To show that a statement is false, it is enough to give a counterexample. A counterexample is an example that establishes that the statement is false. Read the following:

Statement - All human beings are Indian.

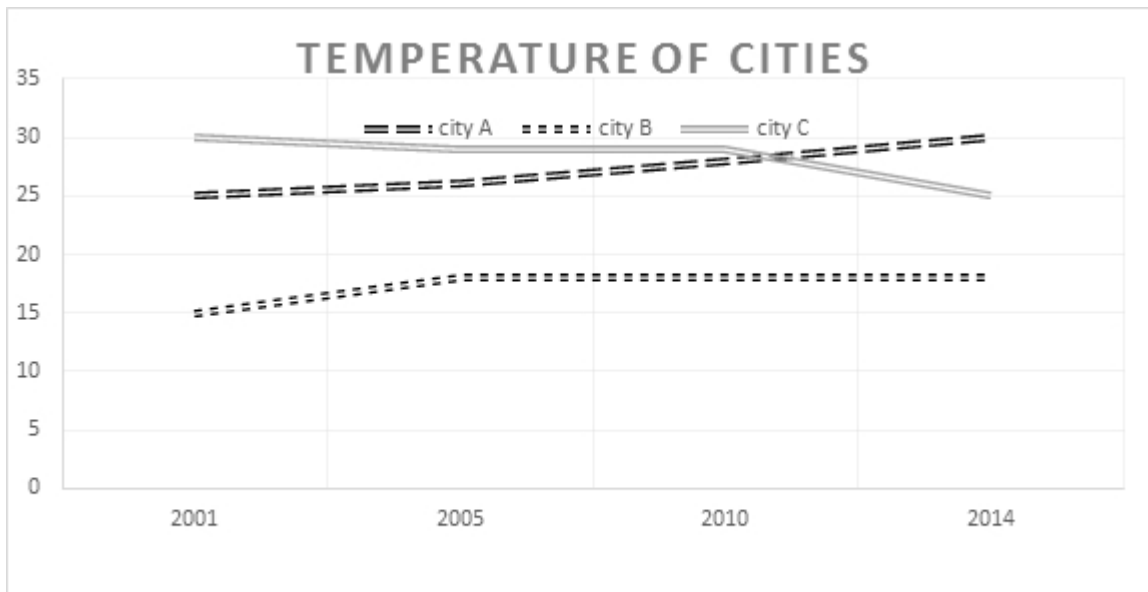
This statement is false because we have a counterexample. i.e, There are human beings who are Chinese. Chinese are not Indians but they are human beings.

Now answer the question below.

16. Statement - All animals are insects. Choose the correct counterexample which shows that the statement is false.

- A. All butterflies are insects
- B. Tomato is not an animal
- C. A dog is an animal
- D. All insects are animals

Instruction for Q 17: Look at the following graph which plots temperature over 15 years and answer Q 18



17. Which of the following statements is true?

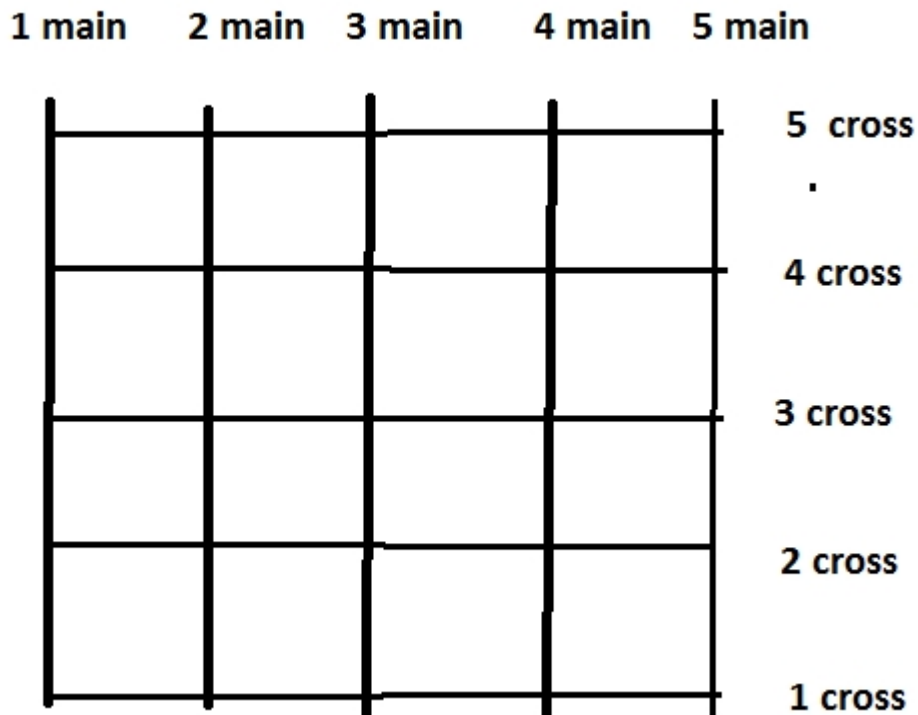
- A. All cities have become warmer over 15 years
- B. Only City A has become warmer every year
- C. City A and B have become warmer every year
- D. City C is the hottest city every year

18. In a class of one hundred students, the students are asked if they like mangoes. Eighty of them raise their hands. When they are asked if they like apples, sixty raise their hands. What is the minimum possible number of students who likes both apples and mangoes?

- A. 10
- B. 40
- C. 50
- D. 60

19. I am facing east. I turn 90 degrees clockwise and walk 100 m. Then I turn 45 degrees anticlockwise, which direction am I now facing?
- Cannot say
 - East
 - South East
 - North East
20. A train travels at 36 km per hour and is 100 metres long. How many seconds does the train take to go pass a pole on the side of the track?
- 36 seconds
 - 360 seconds
 - 10 seconds
 - 100 seconds
21. A car travels from Bangalore to Mysore, a distance of 144 km, at 72 km/ hour. On the return journey, it travels at 36 km/ hour. What is the average speed for the total journey?
- 54 km/ hr
 - $36\sqrt{2}$ km/ hr
 - 48 km/ hr
 - None of the above

Instruction for Q 22,23 and 24: Study the following map of a town, which has regularly spaced streets 100 meters apart, in two perpendicular directions. Answer questions 22,23 and 24 based on this map.



22. A taxi starts from 1 main 1 cross (which we write as (1m, 1c) and travels to (3m, 3c). It can only travel along the main roads and cross roads. What is the shortest possible length of the journey?
- 100 meters
 - 400 meters
 - 300 meters
 - 200 meters

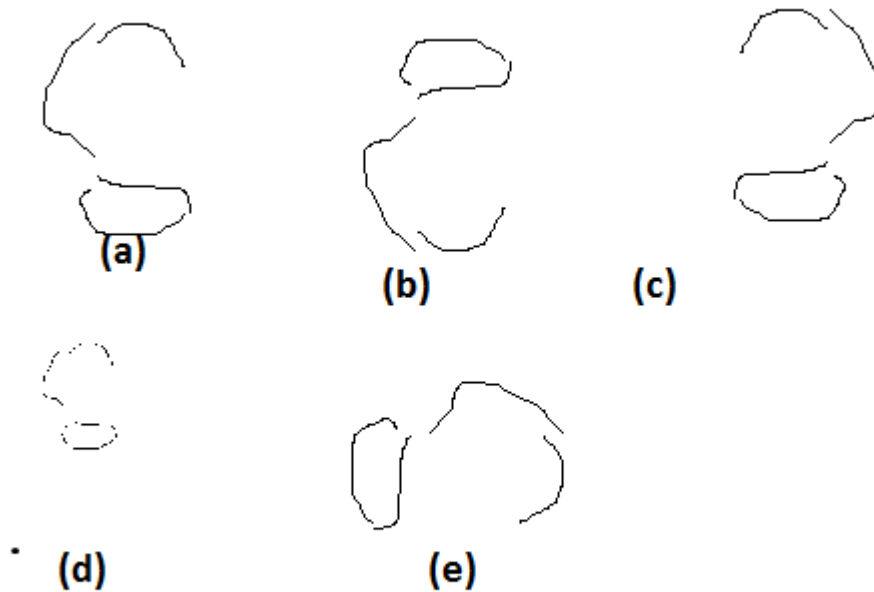
23. How many different routes are there with this minimum length?

- A. 10
- B. 2
- C. 6
- D. Infinite

24. Ram and Shyam start at the same point (first main first cross) and finish at third main third cross. Ram goes to third main first cross. How many routes are available to Shyam so that the two routes do not meet except at the beginning and end?

- A. 4
- B. 2
- C. Exactly one route
- D. None. Shyam's route always intersection Ram's route

Instruction to Q 26: The following figure shows an irregular geometric shape in (a). This has been changed in different ways and shown in (b), (c), (d) and (e)

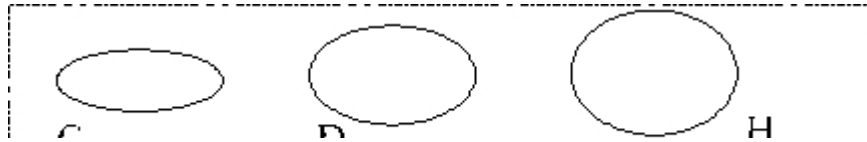


25. Which of the following statements is NOT true?

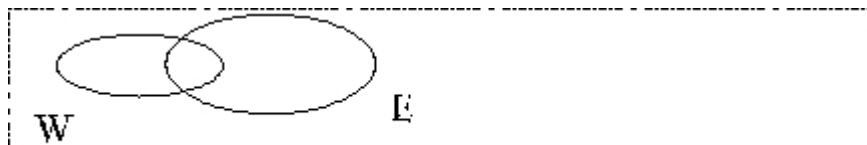
- A. (a) is a magnified version of (d)
- B. (c) and (a) are related by reflection in a vertical mirror
- C. (a) is rotated by 90 degrees clockwise to get (e)
- D. (a) and (b) are related by reflection in a vertical mirror

26. A farmer is gifted a piece of land. He is given a rope of length 400 meters to declare the boundary of a rectangular field. What is the maximum area of land that he can get?
 A. 6400 square meters B. 100 square meters C. 64 square meters D. 10000 square meters
27. An even integer can be written in the form $2x$, where x is an integer. So $-6, -10, 4, 72$ are all even integers. Which of the following is always an odd integer, where x is an integer?
 A. $x - 1$ B. $2x - 1$ C. $2(x + 1)$ D. $2x + 2$

Instructions to Q 29 and Q30: A set is a collection of objects. We can use pictures to show sets and understand the relationship between them. For example, the three sets of cats (C), dogs(D) and human(H) beings are shown as three independent circles with nothing in common.

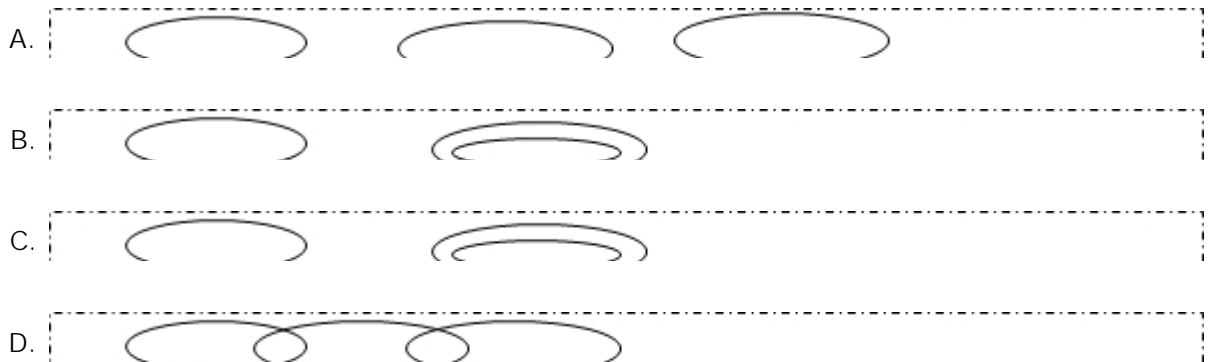


But if W is the set of women and E is the set of engineers, we show them as follows

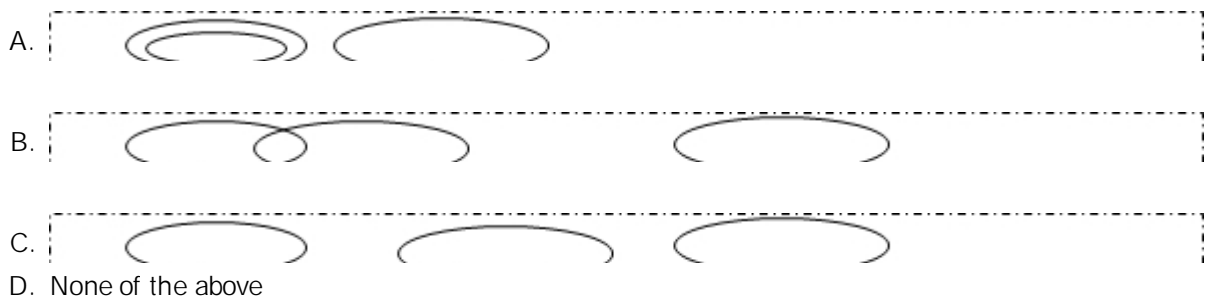


some engineers are women (shown by the intersection) and some engineers are not women, some women are not engineers. Based on this, answer the next 2 questions.

28. Which of these diagrams indicates relationship between crows, birds and dogs?



29. Which of these diagrams represents the relationship between plants, animals, living things?



Instructions to Q30 and Q31: Two sweet shops are next to each other. In the morning both start with the same amount of material to make laddoos which are spherical in shape. The first shop makes 270 small laddoos, each 2cm. in diameter. The second shop makes big laddoos which are 6cm. in diameter. Both of the shops then decide to cover the laddoos with silver foil. The first shop spends 270 rupees on the foil. (The volume of a sphere is $\frac{4}{3}\pi r^3$, circumference of a sphere is $4\pi r^2$).

30. The number of big laddoos made by the second shop is

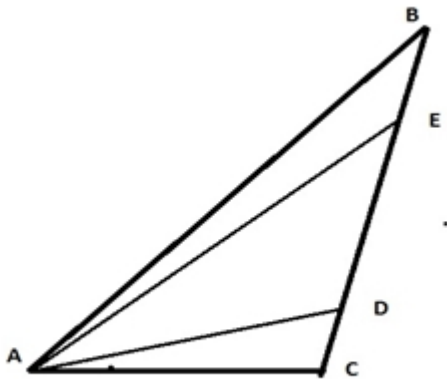
- A. 90
- B. 10
- C. 30
- D. 27

31. The expense on covering the big laddoos with silver foil is

- A. 60
- B. 10
- C. 30
- D. None of the above

32. $(a + b)^2 = a^2 + 2ab + b^2$. This expression has three terms after like terms have been collected, that is ab and ab are added to give $2ab$. If you collect like terms, how many terms does the expression $(a + b + c)(a + b + c)(a + b + c)(a + b + c)$ have?

- A. 4 terms
- B. 3 terms
- C. 15 terms
- D. 12 terms



33. A cake is made in the shape of a triangle with unequal sides, ABC in the figure above. If it is to be cut along the lines AD and AE so that the three portions are equal in area, which of the following is true?

- A. $CAD = DAE = EAB$
- B. $CD = DE = EB$
- C. $AC = AD = AE = AB$
- D. None of the above