

Class X: Scholarship Test Sample Paper

Time: 60 Minutes

Maximum Marks: 140

- All questions carry equal marks.
- There are 35 questions in the test. For each question you will be awarded **4 marks** for the correct answer and zero mark for all other cases.

- If RESPOND is coded as EMPOTDS and SENSE is coded as FROTD, Then CLARIFY will be coded as:
(a) EDTOJME (b) ZEJSBMD
(c) ZEJQBKD (d) ZDKSBKD
- Renu went to the market between 7 am and 8 am. The angle between the hour -hand and the minute -hand was 90° . She returned home between 7 am and 8 am. Then also the angle between the minute hand and hour hand was 90° . At what time (nearest to second) did Renu leave and return home?
(a) 7h 18 m 35 s and 7h 51 m 24 s
(b) 7h 19 m 24 s and 7h 52 m 14 s
(c) 7h 20 m 42 s and 7h 53 m 11 s
(d) 7h 21 m 49 s and 7h 54 m 33 s
- A boat starts with the speed of 1 km per hour. After every 1km, the speed of boat becomes twice. How much will be the average speed of the boat at the end of journey of 2.5 km ?
(a) $\frac{2.5}{1.5125}$ (b) $\frac{2.5}{1.75}$
(c) $\frac{2.5}{1.625}$ (d) $\frac{2.5}{1.50}$
- A tank is filled by three pipes with each pipe having uniform flow. The first two pipes operating simultaneously fill the tank in the same time during in which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hrs faster than the first pipe and 4 hrs slower than the third pipe. The time required by the first pipe to fill the tank is:
(a) 6 hrs (b) 10 hrs
(c) 15 hrs (d) 30 hrs
- If $\frac{54}{32} = 4$, $\frac{36}{42} = 3$, $\frac{92}{22} = 7$ then what is $\frac{28}{33} = ?$
(a) 5 (b) 6
(c) 4 (d) 9
- Using the total number of alphabets in your solution as a parameter, find the number that represents G if, A-0, B-0, C-2, D-2, E-1, F-2, G-?
(a) 2 (b) 3
(c) 4 (d) 5
- Given that the total cost of 5 erasers, 7 sharpeners and 9 pencils is Rs.100 and the total cost of 2 erasers, 6 sharpeners and 10 pencils is Rs.80. What is the total cost (in Rs.) of one erasers, one sharpener and one pencil?
(a) 10 (b) 15
(c) 20 (d) Data are not sufficient
- Rajat is holding a trivia contest. The 13 students who are participating randomly draw cards that are numbered with consecutive integers from 1 to 13. The student who draws number 1 will be the host. The students who draw the other odd numbers will be on the Red Team. The students who draw the even numbers will be on the Blue Team. One student has already drawn a card and is on the Blue Team. If Partik is the next student to draw a card, what is the probability that he will be on the Red Team?
(a) $\frac{1}{13}$ (b) $\frac{1}{12}$
(c) $\frac{6}{13}$ (d) $\frac{6}{12}$
- Aditya is designing a rectangular mirror. Let w = the width, in centimetres, of the mirror. The length of the mirror will be 6 centimetres more than the width. The perimeter of the mirror will be less than 96 centimetres and greater than 76 centimetres. Which of the following inequalities shows the possible widths, in centimetres, of the mirror ?
(a) $13 < w < 18$ (b) $16 < w < 21$
(c) $19 < w < 24$ (d) $35 < w < 45$

10. The label on a cereal states the following :
One serving of cereal contains 17 grams of carbohydrates. This number of grams is 6% of the maximum amount of carbohydrates that a person should eat in a day.
- Based on this information, which of the following is closest to the maximum amount of carbohydrates that a person should eat in a day?
(a) 1.02 grams (b) 2.83 grams
(c) 102 grams (d) 283 grams
11. If MENTAL : SMXFOB then ABILITY: _____?
(a) GJSXWJQ (b) GSXWJJQ
(c) SGXWJJQ (d) SJXQJWG
12. At noon and at midnight, the long and short hands of a clock are together. Between noon and midnight, how many times the long hand overtakes the short hand?
(a) 9 (b) 10
(c) 11 (d) 12
13. A man goes on a trek to from the bottom to top of a mountain. He starts at 6 am of 15th of October, 2017 from the bottom and reaches the top at 6 pm of the same day. On 16th October, 2017 he starts from the top at 6 am and goes back following exactly the same route and reaches the bottom at 6 pm. Based on the above situation, analyze the following possibilities:
- It is not possible to find a point on the route which he will cross at the same time each day.
 - It is possible to find a point on the route which he will cross at the same time each day provided only if he travels on each day with uniform speed.
 - It is always possible to find a point on the route which he will cross at the same time each day irrespective of his speed of travel.
- (a) Only i is true. (b) Only ii is true
(c) Only iii is true (d) Both i and ii are true.
14. Afsana was walking in desert. Anwar was passing by riding on a camel. Afsana requested for a lift. Anwar said he will give lift only to those who are related to him. At this, Afsana told him that Anwar's mother-in-law is the mother of her mother-in-law. How is Anwar related to Afsana?
(a) Father (b) Maternal Uncle
(c) Brother-in-law (d) Father-in-law
15. Ayush, Hina, Harbhajan and George are student friends studying in Delhi and plan to go on winter holiday somewhere in India. They can go to Rajasthan, Goa, Kerala, Odisha, Madhya Pradesh or any of the North-Eastern States. Ayush is willing to go anywhere except North-Eastern states. Harbhajan prefers not to go Goa and Kerala. Hina wants to go either to Goa or Odisha. George does not mind as long as it is Rajasthan. Which destination is acceptable to all?
(a) Goa (b) Odisha
(c) Kerala (d) Madhya Pradesh
16. In the given sequence, some letters are missing. Which of the options can fill the blanks in correct order from left to right?
ab_ab_aaa_baaa_bbbb
(a) abab (b) abba
(c) aabb (d) baba
17. Complete the series
D3Y104, G9U91, J27Q78, M8IM65, _____
(a) P243I39 (b) Q243I52
(c) P243I52 (d) Q162J39
18. If REASON is coded as PGYUMP, then DIRECT will be coded as _____?
(a) BKPGAV (b) FKTGEV
(c) FGTCER (d) BGPCAR
19. A person needs to find the fastest two horses from 16 horses. Only a race of four horses can be conducted at a time. What is the minimum number of races to be conducted to determine the fastest two horses? Assume the horses will not be tired and time cannot be measured.
(a) 6 (b) 7
(c) 8 (d) 15
20. Which letter replaces the question mark?
b, c, e, g, k, ?, q, s
(a) l (b) m
(c) n (d) o
21. Some statements about the Rutherford's α -particle scattering experiment are given :
- As most of the α -particles passed through the gold foil without getting deflected, the positive charge of the atom occupies the entire space.
 - As very few particles were deflected from their path, very little space inside the atom is empty.
 - As a very small fraction of α -particles were deflected by 180° , all the positive charge and mass of the gold atom were concentrated in a very small volume within the atom. Select the correct statement(s).
- (a) I and II (b) I and III
(c) II and III (d) III only

22. An element X has electronic configuration 2, 8, 1 and another element Y has electronic configuration 2, 8, 7. They together form a compound Z. Which of the following property is not exhibited by Z?
 (a) It has high melting point.
 (b) It is a good conductor of electricity in its pure solid state
 (c) It breaks into pieces when beaten with hammer.
 (d) It is soluble in water.
23. A metal sphere of mass 12 kg has the same diameter as another sphere of mass 4 kg. Both spheres are dropped simultaneously from a tower. When they are 8 m above the ground, they have the same _____. (Neglect air resistance.)
 (a) Kinetic energy (b) Potential energy
 (c) Momentum (d) Acceleration
24. A body floats with $\frac{1}{3}$ of its volume outside water and $\frac{3}{4}$ of its volume outside another liquid. The density of another liquid is:
 (a) $\frac{9}{4} \times 103 \text{ kg/m}^3$ (b) $\frac{4}{9} \times 103 \text{ kg/m}^3$
 (c) $\frac{8}{3} \times 103 \text{ kg/m}^3$ (d) $\frac{3}{4} \times 103 \text{ kg/m}^3$
25. The ___(i)___ of a sound is determined by its ___(ii)___ . The ___(iii)___ of the sound wave depends upon the force with which an object is made to vibrate. A sound of ___(iv)___ frequency is called a ___(v)___.
- | | (i) | (ii) | (iii) | (iv) | (v) |
|----|-----------|-----------|-----------|--------|------|
| a. | Amplitude | Loudness | Loudness | Double | Note |
| b. | Loudness | Frequency | Amplitude | Single | Tone |
| c. | Loudness | Amplitude | Amplitude | Double | Tone |
| d. | Amplitude | Loudness | Loudness | Single | Note |
26. Which of the following are characteristic features of cells of meristematic tissue?
 (a) Actively dividing cells with dense cytoplasm thick cell wall and prominent nuclei.
 (b) Actively dividing cells with dense cytoplasm, thin cell wall and no vacuoles
 (c) Actively dividing cells with little cytoplasm, thin cell wall and prominent nuclei
 (d) Actively dividing cells with thin cytoplasm, thin cell wall and no vacuoles.
27. Which of the following is NOT correct?
 (a) Tendons are tissues with great strength and flexibility.
 (b) Bones are connected to each other by tendons.
 (c) Cartilage smoothen bone surface at joints
 (d) Tendons connect muscles to bones.
28. A person with blood group 'A' can donate blood to the persons with blood group 'A' or 'AB' because it:
 (a) has both 'A' and 'B' antigens.
 (b) has only 'A' antigen and 'B' antibodies.
 (c) has only 'B' antigen and 'A' antibodies.
 (d) does not have any antigens and antibodies.
29. The polynomials $x^3 + 2x^2 - 5ax - 8$ and $x^3 + ax^2 - 12x - 6$ when divided by $(x - 2)$ and $(x - 3)$ leave remainders p and q, respectively. If $q - p = 10$, then find the value of a.
 (a) $\frac{33}{19}$ (b) $\frac{23}{24}$
 (c) $\frac{23}{19}$ (d) $\frac{4}{33}$
30. The value of $\cos(x) - \sin(x)$ ($0 \leq x \leq 45$) is:
 (a) 0
 (b) +ve
 (c) -ve
 (d) Sometimes -ve sometimes +ve
31. A Circle C is drawn inside a square S so that the 4 sides of S are tangent to C. An equilateral triangle T is drawn inside C with its vertices on C. The area of S is k times the area of T, then the value of k is:
 (a) $\frac{16}{3(3)^{1/2}}$ (b) $\frac{16}{(3)^{1/2}}$
 (c) $\frac{32}{3(3)^{1/2}}$ (d) $\frac{32}{(3)^{1/2}}$
32. The smallest number which when increased by 17 is exactly divisible by both 520 & 468 is
 (a) 4697 (b) 4656
 (c) 4663 (d) 4680
33. 25 buses are running between two places P and Q. What is the total number of ways that person can travel from P to Q and return by a different bus?
 (a) 625 (b) 600
 (c) 576 (d) 675
34. If $x + \frac{1}{x} = 2$ then $(x)^{1/2} + \frac{1}{x^{1/2}}$ will be
 (a) $2^{1/2}$ (b) 2
 (c) $2^{1/2} + 1$ (d) 1

35. A wooden bookshelf has external dimensions as follows: Height = 110 cm, Depth = 25 cm, Breadth = 85 cm. The thickness of the plank is 5 cm everywhere. The external faces are to be polished and the inner faces are to be painted. If the rate of polishing is 20 paise per cm^2 and the rate of painting is 10 paise per cm^2 , find the total expenses required for polishing and painting the surface of the bookshelf.
- (a) 1275 (b) 6275
(c) 6245 (d) 6380
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