ExSAT
EXCEL SCHOLARSHIP ADMISSION TEST

SAMPLE

Time Alloted : 2 hours   ***Total Marks : 100***

Instructions

The scholarship test will be 2 hours in duration and will be 100 marks in total.

The test consists of multiple-choice questions only .

All questions must be answered on the provided answer sheet.

You are not allowed to use any electronic devices during the test.

You will not be allowed to leave the test room until the end of the test.

Any form of cheating will result in disqualification from the scholarship.

You will be notified of your test results within a week after the test.

If you have any questions or concerns, please ask the invigilator before the test.

Read all instructions and questions carefully before answering

Do not spend too much time on a single question. Attempt all questions to the best of your ability

You will be required to submit your answer sheet before leaving the test room.
Do not forget to fill in your personal details on the answer sheet.

The scholarship test is a competitive process and only a limited number of scholarships will be awarded.

Name : _____

Class : _____10th_____   School : _____

Education Board : _____ Contact : _____

Signature of Invigilator

Excel Institute

EXSAT 10TH
Class 10 - Admission Test

Time Allowed: 1 hour and 30 minutes   **Maximum Marks:** 100

1. Complete the given narrative, by filling in the blank with the correct option.

   The opportunity to volunteer at the local food bank made me _____ the challenges faced by underprivileged communities.

      a) realize   b) realizing

      c) realized   d) to realize

2. Students' minds _____ about the order of structures.

      a) had confused   b) have been confused

      c) has confused   d) have confused

3. Don't think there will be a severe shortage of usable water because there was _____ rain fall yesterday.

      a) little   b) any

      c) few   d) a lot of

4. There is _____ water left, so drink only if you must.

      a) little   b) some

      c) Few   d) much

5. A bag contains 5 black, 7 red and 3 white balls. A ball is drawn from the bag at random. The probability that the drawn ball is red, is :

      a) $\frac{3}{15}$ b) $\frac{5}{15}$

      c) $\frac{1}{15}$ d) $\frac{7}{15}$

6. The zeros of the polynomial p(x) = $2x^2$ + 7x - 4 are

      a) -4, $\frac{1}{2}$ b) -4, $\frac{-1}{2}$

      c) 4, $\frac{1}{2}$ d) 4, $\frac{-1}{2}$

7. $(1296)^{\frac{-1}{4}}$ =

      a) $\frac{1}{6}$ b) 6

      c) $-\frac{1}{6}$ d) -6

8. If the circumference of the base of a 9 m high conical tent is 44 m, then the volume of air contained in it is

      a) 1386 m^3 b) 693 m^3

      c) 462 m^3 d) 924 m^3

9. A hemispherical bowl is made of steel 0.25 cm thick. If the inner radius of the bowl is 3.25 cm,

then the outer curved surface area of the bowl is

a) 115.5 cm^2

b) 38.5 cm^2

c) 77 cm^2

d) 154 cm^2

10. The sum of a rational and an irrational number is

a) Always Rational

b) Rational

c) Irrational

d) Can be Rational or Irrational

11. A number is selected at random from first 50 natural numbers. What is the probability that it is a multiple of 4 or 5?

a) $\frac{9}{25}$

b) $\frac{2}{5}$

c) $\frac{6}{25}$

d) $\frac{23}{50}$

12. An electric bulb of 60 W burns for 5 hours a day. The cost of electricity involved in a month of 30 days at ₹ 3.00 per unit is (in ₹)

a) 2.70

b) 27

c) 2700

d) 270

13. The tissue shown in the given figure is

a) Phloem parenchyma with abundant food reserve

b) Scierenchyma, in which uniform wall thickenings are present

c) Angular collenchyma, in which wall thickenings are present at the angles

d) Xylem vessel that forms long channels for conduction of water and minerals

14. The process of crossing genetically dissimilar plants of a species is called

a) intervarietal cross

b) All of these

c) intergeneric cross

d) interspecific cross

15. Which of the following are homogeneous in nature

i. ice

ii. wood

iii. soil

iv. air

a) (i) and (iv)

b) (i) and (iii)

c) (iii) and (iv)

d) (ii) and (iv)

16. If the bulbs of 60 W and 40 W are connected in series to a 220 V source the bulb which glows brighter is:

    a) 60 W

    b) Both glow equally bright

    c) Depends on the make of the bulb

    d) 40 W

17. Which of the following has the maximum number of molecules?

    a) 1 g of N_2

    b) 1 g of CH_4

    c) 1 g of H_2

    d) 1 g of CO_2

18. A body moves under a variable force. For the body a plot of velocity versus time is shown in figure. The correct statement is

    a) In moving from C to D, work done by the force on the body is positive

    b) In moving from B to C, work done by the force on the body is positive

    c) In moving from A to B, the body does work on the system

    d) In moving from O to A, work done by the force on the body is negative

19. Identify the mirror image of

    a)

    b)

    c)

    d)

20. Identify the correct number which can take place the missing number.

    ? : 8 :: 8 : 1

    a) 40

    b) 56

    c) 64

    d) 110

21. Find out the alternative figure which contains figure (X) as its part.

a) 4   b) 3

c) 2   d) 1

22.   Select the mirror image of the question figure when mirror is held at XY.

a) Figure (d)   b) Figure (a)

c) Figure (c)   d) Figure (b)

23.   **A + B** means **A is the father of B** and **A - B** means **A is the wife of B**. On the basis of this information, what does P + Q - R means?

a) Pis the uncle of R.   b) P is the son of R.

c) P is the brother of R.   d) P is the father-in-law of R.

24.   Which of the following diagrams indicates the best relation between Professors, Doctors and Men?

a)

b)

c)

d)

25.   Find the number of triangles in the given figure.

a) 21   b) 27

c) 23   d) 25

1. **(a)** realize
   Explanation:
   realize

2.
   (b) have been confused
   Explanation:
   have been confused

3.
   (d) a lot of
   Explanation:
   a lot of

4. **(a)** little
   Explanation:
   little

5.
   (d) $\frac{7}{15}$
   Explanation:
   Total number of balls in the bag i.e. total possible outcomes = 5 + 7 + 3 = 15
   Number of red balls i.e. the number of favourable outcomes = 7
   Therefore, the probability that the drawn ball is red = $\frac{7}{15}$

6. **(a)** -4, $\frac{1}{2}$
   Explanation:
   The given polynomial is p(x) = $2x^2$ + 7x - 4
   Putting x = $\frac{1}{2}$ in p(x), we get
   $p\left(\frac{1}{2}\right)$ = $2 \times \left(\frac{1}{2}\right)^2$ + $7 \times \frac{1}{2}$ - 4 = $\frac{1}{2} + \frac{7}{2}$ - 4 = 4 - 4 = 0
   Therefore, x = $\frac{1}{2}$ is a zero of the polynomial p(x)
   Putting x = -4 in p(x), we get
   p(-4) = $2 \times (-4)^2$ + $7 \times (-4)$ - 4 = 32 - 28 - 4 = 32 - 32 = 0
   Therefore, x = -4 is a zero of the polynomial p(x)
   Thus, $\frac{1}{2}$ and -4 are the zeros of the given polynomial p(x).

7. **(a)** $\frac{1}{6}$
   Explanation:
   $(1296)^{\frac{-1}{4}}$ = $\left(6^4\right)^{\frac{-1}{4}}$
   = $(6)^{-1}$ = $\frac{1}{6}$

8.
   (c) 462 m^3
   Explanation:
   Given, $2\pi r$ = 44 m²
   r = $\frac{44 \times 7}{2 \times 22}$
   r = 7 m
   Now, Volume of air inside tent = $\frac{1}{3}\pi r^2 h$

$= \frac{1}{3} \times \frac{22}{7} \times 49 \times 9$

$= 469 \ m^3$

9.

(c) 77 cm^2

Explanation:

Here, outer curved surface area is asked, so, thickness would be added to radius.

Thus, r = 3.25 + 0.25 = 3.5 cm

Surface area of bowl = $2\pi r^2 = 2 \times \frac{22}{7} \times (3.5)^2$

$= \frac{2 \times 22 \times 3.5 \times 3.5}{7}$

$= 77 \ cm^2$

10.

(c) Irrational

Explanation:

Let rational number + irrational number = rational number

And we know " rational number can be expressed in the form of PQ, where p, q are any integers,

So, we can express our assumption As :

PQ + x = ab (Here x is a irrational number)

x = ab - PQ

So,

x is a rational number, but that contradicts our starting assumption.

Hence rational number + irrational number = irrational number

11.

(b) $\frac{2}{5}$

Explanation:

Total number of possible outcomes = 50

Let E be the event of 'selecting a multiple of 4 or 5'.

So, the favourable outcomes are {4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 5, 10, 15, 25, 30, 35, 45, 50}

i.e., 20 in number.

∴ P(E) = $\frac{20}{50}$ = $\frac{2}{5}$

12.

(b) 27

Explanation:

Power = $\frac{Energy \ consumed}{Time}$

Given power = 60W = 0.06kW

Therefore, For one-day energy consumed, 0.06kW = $\frac{Energy \ consumed}{5 \ hr}$

0.30kWh = Energy consumed

0.30 unit one day.

Now for 30 days, = 0.30 × 30 = 9 UNIT

Given for 1 unit cost = ₹ 3

Hence cost for 9 unit = 9 × 3 = ₹ 27

13.

(d) Xylem vessel that forms long channels for conduction of water and minerals

Explanation:

Figure shows Xylem vessel that forms long channels for conduction of water and minerals

14. **(a)** intervarietal cross
Explanation:
When the crossing is done between different varieties of plants, it is called intervarietal. In this case, plants of the same species but from different populations are cross-bred to produce a new variety.

15. **(a)** (i) and (iv)
Explanation:
A mixture is said to be a homogeneous mixture if its constituents are distributed uniformly and are not physically distinct. Wood and soil are heterogeneous mixtures. Ice is made up of water and water is a pure compound. Air is a mixture of various gases.
Ice and air are homogeneous in nature.

16.

(d) 40 W
Explanation:
In series 40W bulb glow brighter as
P = VI (P – power)
P = I^2R (V= IR)
Therefore power is directly proportional to resistance. The resistance of the 40W bulb is higher.
So, it will have more power and it will glow brighter.

17.

(c) 1 g of H_2
Explanation:
1 g of H_2 (Molar mass 2 g) contains 3.011×10^{23} molecules, 22 g of CO_2 (Molar mass 44 g) contains 3.011×10^{23} molecules, 14 g of N_2 (Molar mass 28 g) contains 3.011×10^{23} molecules and 8 g of CH_4 (Molar mass 16 g) contains 3.011×10^{23} molecules.

18. **(a)** In moving from C to D, work done by the force on the body is positive
Explanation:
In moving from C to D, slope of graph is negative which means acceleration (force) is negative and displacement is also negative as the area under curve CD lies below the time axis. Hence, work done by the force on the body is positive.

19.

(b)

Explanation:

 is the correct mirror image of the question figure.

20.

(c) 64
Explanation:
8x : x

21. **(a)** 4

     Explanation:

     Figure 4, contains figure (X).

22.

     (b) Figure (a)

     Explanation:

23.

     (d) P is the father-in-law of R.

     Explanation:

     P + Q - R means P is the father of Q who is wife of R. So, P is the father-in-law of R.

24.

     (b)

     Explanation:

     Some doctors may be professors and vice-versa.

     Some professors may be men and vice-versa.

     Some doctors may be men and vice-versa.

     Some doctors may be men and professors as well.

25.

     (b) 27

     Explanation:

     The simplest triangles are ABL, BCD, DEF, FGP, PGH, QHI, JQI, KRJ and LRK i.e. 9 in number.

     The triangles composed of two components each are OSG, SGQ, SPI, SRI, KSQ, KMS, FGH, JHI and JKL i.e. 9 in number.

     There is only one triangle i.e. KSG which is composed of four components.

     The triangles composed of five components each are NEI, ANI, MCG and KCO i.e. 4 in number.

     The triangles composed of six components each are GMK and KOG i.e. 2 in number.

     There is only one triangle i.e. AEI composed of ten components.

     There is only one triangle i.e. KCG composed of eleven components.

     Therefore, the Total number of triangles in the given figure = 9 + 9+1 + 4 + 2+1 + 1 = 27.