

702 – B

SCHOLASTIC APTITUDE TEST
(For Students of Class X)

Date : 03/11/2019

Time : 120 Minutes

Max. Marks : 100

(For Blind Candidates Time : 2 Hours 30 Minutes)

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open question booklet.

1. Answers are to be given on a **separate answer sheet (OMR sheet.)**
2. Please write your **Roll Number** as allotted to you in the admission card very clearly on **the test-booklet** and darken the appropriate circles on the **answer sheet** as per instructions given.
3. There are 100 questions in this test. All are compulsory. The questions numbers 1 to 13 belong to Physics, 14 to 26 Chemistry, 27 to 33 Botany, 34 to 40 Zoology, 41 to 60 Mathematics, 61 to 71 History, 72 to 82 Geography, 83 to 93 Political Science and 94 to 100 are on Economics subjects.
4. Please follow the instructions given on the answer sheet for marking the answers.
5. If you do not know the answer to any question, do not waste time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and attempt them.
6. Since the time allotted for this question paper is very limited, you should make the best use of it by not spending too much time on any one question.
7. **Rough work** can be done **on the given Blank Pages at the back of the booklet** but not on the answer sheet/loose paper.
8. Every correct answer will be awarded one mark. There will be no negative marking.
9. **Please return the Answer sheet (OMR) only to the invigilator after the test.**
10. Hindi version of the question paper will be considered as final in case of any dispute arising out of variation in translated version.



Piprali Road, Sikar

Phone : 01572-241911, 242911 Mob. No. : 97832-62999

Website : www.matrixhighschool.org

1. If work, force and time are represented by A, B and C respectively then the term $\left(\frac{A}{BC}\right)$ will present

- (1) Displacement (2) Velocity (3) Acceleration (4) Momentum

Ans. (2)

Sol. Work = A $\Rightarrow$ Force = B $\Rightarrow$ Time = C

Then the term

$$\left(\frac{A}{BC}\right) = \left(\frac{\text{work}}{\text{force} \times \text{time}}\right) \therefore \text{Work} = \text{force} \times \text{displacement}$$

$$\frac{A}{BC} = \frac{\text{force} \times \text{displacement}}{\text{force} \times \text{time}} = \frac{\text{displacement}}{\text{time}} = \text{velocity}$$

2. The initial velocity of a particle is 10 m/s. It is moving with an acceleration of 4 m/s². The distance covered by the particle after 2s is :

- (1) 6 m (2) 18 m (3) 22 m (4) 28 m

Ans. (4)

Sol. Initial velocity u = 10 m/s

$$\Rightarrow \text{time (t)} = 2 \text{ sec}$$

acceleration a = 4 m/s

$$\Rightarrow \text{distance S} = ?$$

$$S = ut + \frac{1}{2}at^2$$

$$= (10 \times 0 + \frac{1}{2} \times 4 \times (2)^2) \text{ m} = 28 \text{ m}$$

3. Unit of universal gravitational constant is :

- (1) N-m²/kg (2) N-m²/kg² (3) N-m²/m² (4) N-m/kg²

Ans. (2)

Sol. $F = \frac{GM_1M_2}{r^2}$

$$G = \frac{F.r^2}{M_1M_2}$$

Putting the unit of all quantities

$$G = \frac{\text{N} \cdot \text{m}^2}{\text{kg}^2}$$

4. If the speed of wave is 350 m/s and its wavelength is 100 cm then the frequency of the wave will be :

- (1) 35 Hz (2) 350 Hz (3) 700 Hz (4) 3500 Hz

Ans. (2)

Sol. Wave velocity (v) = frequency (η) × wavelength (λ)

$$V = \eta \lambda$$

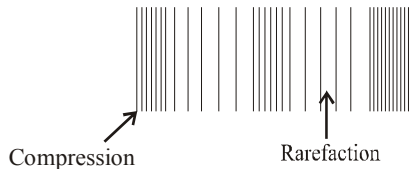
$$350 \text{ m/s} = \eta \times 1 \text{ m}$$

$$\eta = 350 \text{ Hz}$$

5. The wave having compression and rarefaction is known as :
- (1) Transverse wave (2) Longitudinal wave
(3) Light wave (4) Ultraviolet wave

Ans. (2)

Sol. Wave having compression and rarefaction is known as longitudinal



6. If the distance between two masses is doubled then the gravitational force between them will be :
- (1) one - fourth (2) half (3) double (4) four times

Ans. (1)

Sol. $F \propto \frac{1}{r^2}$ (masses = constant)

If new distance become $r' \rightarrow 2r$
then new force F'

$$F' \propto \frac{1}{(r')^2}$$

$$F' \propto \frac{1}{(2r)^2}$$

$$F' \propto \frac{1}{4r^2}$$

$$F' = \frac{F}{4}$$

7. Focal length of a lens is 25 cm. In diopetre power of lens will be :
- (1) 0.04 (2) 0.4 (3) 4 (4) 2.5

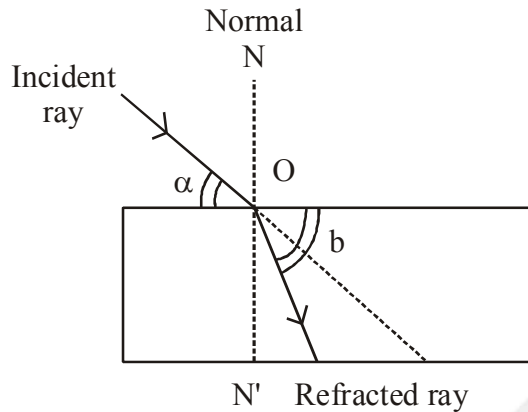
Ans. (3)

Sol. $f = 25 \text{ cm}$

$$f = 0.25 \text{ m}$$

$$P = \frac{1}{f(\text{m})} = \frac{1}{0.25} = 4 \text{ Diopetre}$$

8. In the given ray diagram correct relation for Snell's law is :



(1) $\frac{\sin a}{\sin b} = \text{constant}$

(2) $\frac{\sin b}{\sin a} = \text{constant}$

(3) $\frac{\sin(90 - a)}{\sin(90 - b)} = \text{constant}$

(4) $\frac{\sin(90 - a)}{\sin b} = \text{constant}$

Ans. (3)

Sol. Angle of incidence

$$\angle i = 90 - a$$

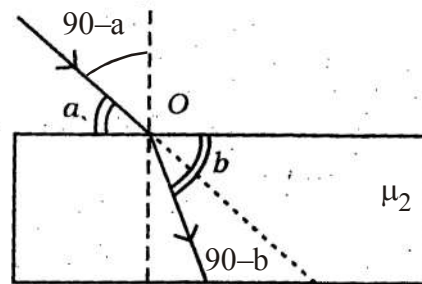
angle of refraction

$$\angle r = 90 - b$$

$$\mu_1 \sin i = \mu_2 \sin r$$

$$\mu_1 \sin(90 - a) = \mu_2 \sin(90 - b)$$

$$\frac{\sin(90 - a)}{\sin(90 - b)} = \frac{\mu_2}{\mu_1} = \text{constant}$$



9. Which term does not represent electric power ?

(1) $P = \frac{V}{I}$

(2) $P = VI$

(3) $P = I^2 R$

(4) $P = \frac{V^2}{R}$

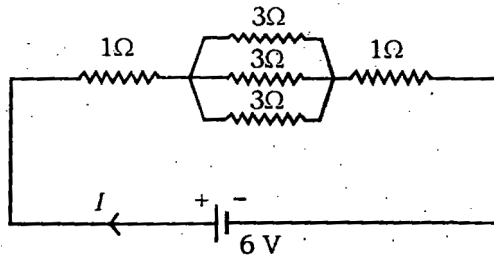
Ans. (1)

Sol. $P = V \times I$

$$P = I^2 R$$

$$P = \frac{V^2}{R}$$

10. In the given circuit the value of current I will be



(1) $\frac{6}{11}$ A

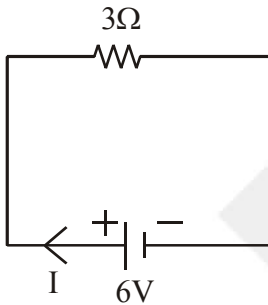
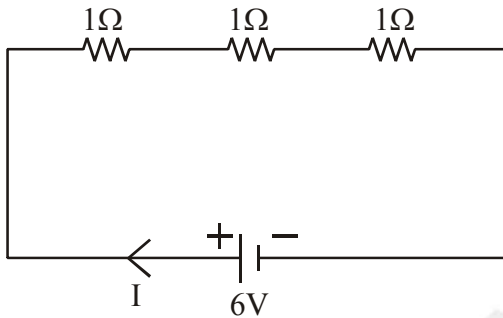
(2) $\frac{6}{5}$ A

(3) 2A

(4) 1A

Ans. (3)

Sol.



$$R_{eq} = 3\Omega$$

$$V = 6V$$

$$V = IR_{eq}$$

$$6V = I \times 3\Omega$$

$$I = 2A$$

11. Unit of magnetic flux is :

(1) volt

(2) weber

(3) hertz

(4) ohm-metre

Ans. (2)

Sol. SI unit of magnetic flux is weber

12. Spring constant of a spring is $K = 6 \times 10^3$ N/m. Work done to stretch it 10^{-2} m from mean position is :

(1) 0.003 J

(2) 0.03 J

(3) 0.3 J

(4) 3 J

Ans. (3)

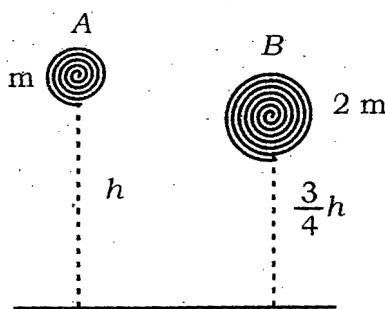
Sol. $K = 6 \times 10^3 \text{ N/m}$

$$x = 10^{-2}$$

$$\text{W.D.} = \frac{1}{2} Kx^2$$

$$= \frac{1}{2} \times (6 \times 10^3) \times (10^{-2})^2 = \frac{1}{2} \times 6 \times 10^3 \times 10^{-4} = 0.3 \text{ J}$$

13. Ratio of potential energies of body A and body B will be :



(1) $\frac{U_A}{U_B} = \frac{2}{3}$

(2) $\frac{U_A}{U_B} = \frac{3}{2}$

(3) $\frac{U_A}{U_B} = \frac{1}{3}$

(4) $\frac{U_A}{U_B} = \frac{3}{4}$

Ans. (1)

Sol. $PE_A = mgh$

$$PE_B = (2m) g \left(\frac{3}{4} h \right)$$

$$\frac{PE_A}{PE_B} = \frac{mgh}{(2m)(g)\left(\frac{3}{4} h\right)}$$

$$\frac{PE_A}{PE_B} = \frac{2}{3}$$

14. Example of an element among the following is

(1) Water

(2) Ammonia

(3) Salt

(4) Iron

Ans. (4)

Sol. Water, ammonia and salt are compounds while Iron is an element.

15. Atomicity of oxygen in ozone molecule is

(1) 1

(2) 2

(3) 3

(4) 4

Ans. (3)

Sol. Atomicity = Number of atoms present in a molecule.

So, for O_3 (ozone)

Atomicity of O = 3

16. Number of moles present in 0.36 g of water is

(1) 0.1

(2) 0.2

(3) 0.01

(4) 0.02

Ans. (4)

Sol. $\therefore \text{Moles} = \frac{\text{Mass(gm)}}{\text{gm. mol. mass}}$

$$\text{So } \therefore \text{Moles of water} = \frac{0.36 \text{ gm}}{18 \text{ gm/mol}} = 0.02 \text{ mol}$$

17. Radioactive isotope used in the treatment of cancer disease is

- (1) Iodine -131 (2) Cobalt-60
(3) Sodium-24 (4) Chlorine-37

Ans. (2)

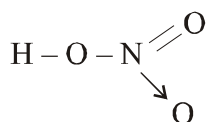
Sol. Cobalt – 60 is used in treatment of cancer disease.

18. The number of coordinate covalent bonds in the structure of nitric acid is

- (1) 0 (2) 1 (3) 2 (4) 3

Ans. (2)

Sol. Nitric acid (HNO_3)



So, number of coordinate covalent bond = 1

19. The pair of valencies exhibited by Tin (Sn) is

- (1) 1, 4 (2) 1, 2 (3) 2, 3 (4) 2, 4

Ans. (4)

Sol. Tin (Sn) exhibit two valencies 2 and 4.

20. The conjugate bases of Bronsted acids H_2O and HCl are respectively

- (1) OH^- , Cl^- (2) H_3O^+ , Cl^- (3) H_3O^+ , Cl^+ (4) OH^- , Cl^+

Ans. (1)

Sol. By removing one H^+ ions, we get bronsted bases of H_2O and HCl which are OH^- and Cl^- respectively.

21. The chemical formula of 'Plaster of Paris' is

- (1) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ (2) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (3) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ (4) $\text{CaSO}_4 \cdot \frac{3}{2} \text{H}_2\text{O}$

Ans. (1)

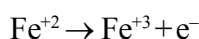
Sol. Chemical formula of plaster of paris = $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$

22. The oxidation reaction in the following chemical changes is

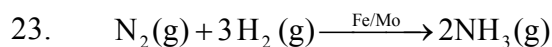
- (1) $\text{Cl} + \text{e}^- \rightarrow \text{Cl}^-$ (2) $\text{Mg}^{+2} + 2\text{e}^- \rightarrow \text{Mg}$
(3) $\text{MnO}_4^- + \text{e}^- \rightarrow \text{MnO}_4^{2-}$ (4) $\text{Fe}^{+2} \rightarrow \text{Fe}^{+3} + \text{e}^-$

Ans. (4)

Sol. loss of e^- is oxidation.



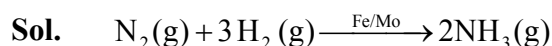
In this, loss of e^- take place so it is oxidation reaction.



Mo in the above reaction is

- | | |
|-----------------------|---------------------------------|
| (1) Catalyst promoter | (2) Catalyst poison (inhibitor) |
| (3) Bio-catalyst | (4) Auto-catalyst |

Ans. (1)



In this reaction, Fe is catalyst and Mo increase the efficiency of catalyst so it is catalyst promoter.

24. Element having highest electronegativity in the periodic table is

- | | | | |
|-------|--------|--------|-------|
| (1) F | (2) Cl | (3) Br | (4) I |
|-------|--------|--------|-------|

Ans. (1)

Sol. F is The most electronegative element in periodic table.

25. The molecular formula of 'Freon-12' is

- | | | | |
|--------------|----------------|------------------|------------------|
| (1) $CFCl_3$ | (2) CF_2Cl_2 | (3) $C_2F_2Cl_4$ | (4) $C_2F_3Cl_3$ |
|--------------|----------------|------------------|------------------|

Ans. (2)

Sol. Freon – XYZ

where X = number of C atoms in molecules – 1

Y = number of H atoms + 1

Z = number of F atoms

So, Freon – 12 will be CF_2Cl_2

26. The monomer units of terylene polymer are

- (1) Terephthalic acid and ethylene glycol
- (2) Adipic acid and ethylene glycol
- (3) Terephthalic acid and hexamethylene diamine
- (4) Adipic acid and hexamethylene diamine

Ans. (1)

Sol. Momomers of terylene polymers are terephthalic acid and ethylene glycol.

27. The habitat related with presence of sunken stomata in leaves is

- | | | | |
|-----------------|----------------|----------------|----------------|
| (1) Hydrophytic | (2) Mesophytic | (3) Xerophytic | (4) Cryophytic |
|-----------------|----------------|----------------|----------------|

Ans. (3)

Sol. Sunken stomata is present in Xerophytic plants to reduce loss of water (Transpiration).

28. Micronutrient element is

- (1) Nitrogen (2) Zinc (3) Magnesium (4) Potassium

Ans. (2)

Sol. Micro nutrients elements are Iron, Manganese, Copper, Molybdenum, Zinc, Boron, Chlorine and Nickel .

29. Coralloid root is found in

- (1) Cycas (2) Pinus (3) Marsilia (4) Azolla

Ans. (1)

Sol. Coralloid roots are present in root of cycas (Gymnosperm) plant. It is associated with N_2 -fixing cyanobacteria (Blue Green Algae)

30. The root of which plant is used as medicine?

- (1) Curcuma longa (2) Aloe vera
(3) Rauwolfia serpentina (4) Papaver Somniferum

Ans. (3)

Sol. The root of rauwolfia serpentina is used as medicine. It is used as antihypertensive medicine.

31. Phenotypic ratio of F_2 generation in dihybrid cross is

- (1) 3 : 1 (2) 9 : 3 : 3 : 1 (3) 1 : 2 : 1 (4) 2 : 1

Ans. (2)

Sol. 9 : 3 : 3 : 1 phenotypic ratio in the F_2 generation is obtained in a dihybrid cross, and is called the Dihybrid ratio.

32. How many biodiversity hotspots are there in the world?

- (1) 25 (2) 33 (3) 20 (4) 34

Ans. (4)

Sol. Initially 25 Biodiversity hotspots were Identified but subsequently nine more have been added to this list. Total Number of biodiversity hotspots are 34.

33. From which district of Rajasthan did Chipko movement begin?

- (1) Jodhpur (2) Jaipur (3) Ajmer (4) Jaisalmer

Ans. (1)

Sol. Chipko movement had taken place in 1731 in Jodhpur (Rajasthan).

34. The part of human brain, which controls involuntary actions is

- (1) Cerebrum (2) Cerebellum (3) Medulla oblongata (4) Optic lobe

Ans. (3)

Sol. Most of the Involuntary actions are controlled by Medulla oblongata.

35. The disease caused by protein deficiency in food is

- (1) Kwashiorkor (2) Scurvy (3) Pellagra (4) Rickets

Ans. (1)

Sol. The disease which is caused by protein deficiency is kwashiorkor.

36. The parts of large intestine are

- | | |
|------------------------------|-----------------------------|
| (1) Duodenum, Ileum, Colon | (2) Caecum, Colon, Rectum |
| (3) Duodenum, Jejunum, Ileum | (4) Jejunum, Ileum, Caecum. |

Ans. (2)

Sol. Caecum, Colon and rectum are the parts of large intestine.

37. The hormone, not secreted by ovary is

- | | | | |
|------------------|--------------|------------------|-------------|
| (1) Testosterone | (2) Estrogen | (3) Progesterone | (4) Relaxin |
|------------------|--------------|------------------|-------------|

Ans. (1)

Sol. Estrogen, Progesterone and Relaxin are secreted by ovary (Female) and Testosterone is secreted by testis (Male).

38. Pseudocoelomate animals are

- | | | | |
|-------------------|--------------|----------------|--------------|
| (1) Aschelminthes | (2) Annelids | (3) Arthropods | (4) Molluscs |
|-------------------|--------------|----------------|--------------|

Ans. (1)

Sol. Pseudocoelomate (false coelome) is present in Aschelminthes.

39. Protozoan disease is

- | | | | |
|----------|-------------|--------------|-------------|
| (1) AIDS | (2) Leprosy | (3) Jaundice | (4) Malaria |
|----------|-------------|--------------|-------------|

Ans. (4)

Sol. Malaria is a protozoan disease.

40. The disease caused by deficiency of Vitamin K is

- | | | | |
|-----------------|---------------|-------------|------------|
| (1) Haemorrhage | (2) Sterility | (3) Rickets | (4) Scurvy |
|-----------------|---------------|-------------|------------|

Ans. (1)

Sol. Haemorrhage disease is caused by deficiency of Vitamin K.

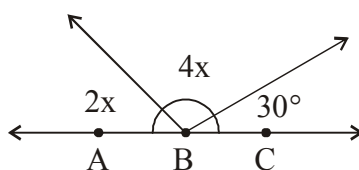
41. If one's digit and ten's digit of a number are a and b respectively, then the number will be

- | | | | |
|---------------|---------------|-------------|----------|
| (1) $10b + a$ | (2) $10a + b$ | (3) $a + b$ | (4) ab |
|---------------|---------------|-------------|----------|

Ans. (1)

Sol. $10b + a$

42. If ABC is a straight line then value of x , in the given diagram will be



- | | | | |
|----------------|----------------|----------------|----------------|
| (1) 15° | (2) 20° | (3) 25° | (4) 30° |
|----------------|----------------|----------------|----------------|

Ans. (3)

Sol. $2x + 4x + 30^\circ = 180^\circ$

$6x + 30^\circ = 180^\circ$

$x = 25^\circ$

43. The sum of all interior angles of a Heptagon is

- (1) 360° (2) 540° (3) 720° (4) 900°

Ans. (4)

Sol. Sum of interior angle of a n sided polygon is $(n - 2) 180^\circ$ (here $n = 7$)

$= (7 - 2) \times 180^\circ = 900^\circ$

44. If in a ΔABC , $AB = AC$ and $\angle A = 70^\circ$ then $\angle B$ is equal to

- (1) 50° (2) 55° (3) 60° (4) 65°

Ans. (2)

Sol. $\because AB = AC$, So triangle is isosceles.

Let equal angles are x , then $x + x + 70^\circ = 180^\circ$.

$x = 55^\circ$

45. If the perimeter of an equilateral triangle is 24 cm, then its area will be

- (1) $16\sqrt{3}$ sq. cm (2) $32\sqrt{3}$ sq. cm (3) $48\sqrt{3}$ sq. cm (4) $64\sqrt{3}$ sq. cm

Ans. (1)

Sol. Perimeter of equilateral triangle = 24

Side of equilateral triangle = 8

Area = $\frac{\sqrt{3}}{4} \times 8 \times 8 = 16\sqrt{3}$ sq. cm.

46. If the volume of a cuboid is 3000 cm^3 and area of its base is 150 cm^2 , then the height of the cuboid is

- (1) 10 cm (2) 15 cm (3) 20 cm (4) 25 cm

Ans. (3)

Sol. $l \times b \times h = 3000$

$l \times b = 100$

$h = \frac{3000}{l \times b} = \frac{3000}{150} = 20 \text{ cm}$

47. If $\sin \theta = \frac{4}{5}$ then the value of $\frac{4 \tan \theta - 5 \cos \theta}{\sec \theta + 4 \cot \theta}$ will be

- (1) $\frac{2}{3}$ (2) $\frac{1}{3}$ (3) $\frac{3}{4}$ (4) $\frac{1}{2}$

Ans. (4)

Sol. $\sin \theta = \frac{4}{5}$

$\cos \theta = \frac{3}{5}$

$\tan \theta = \frac{4}{3}$

So, $\frac{4 \tan \theta - 5 \cos \theta}{\sec \theta + 4 \cot \theta} = \frac{1}{2}$

48. How much time the minute hand of a clock will take to describe an angle of $\frac{2\pi}{3}$ radians ?

- (1) 15 min. (2) 20 min. (3) 10 min. (4) 25 min.

Ans. (2)

Sol. Minute hand makes 6° in one minute.

$$\frac{2\pi}{3} = \frac{2 \times 180^\circ}{3} = 120^\circ$$

So in $120^\circ = \frac{120^\circ}{6^\circ} = 20$ minute

49. If Least Common Multiple (LCM) of a and 510 is 23460 and Highest Common Factor (HCF) of a and 510 is 2 then value of a is

- (1) 92 (2) 910 (3) 52 (4) 500

Ans. (1)

Sol. Product of number = LCM $\times$ HCF

$$a \times 510 = 23460 \times 2$$

$$a = 92$$

50. Discriminant of quadratic equation $2\sqrt{2}x^2 + 4x + \sqrt{2} = 0$ will be

- (1) 0 (2) 1 (3) 2 (4) 3

Ans. (1)

Sol. $D = b^2 - 4ac$

$$16 - 4 \times 2\sqrt{2} \times \sqrt{2} = 0$$

51. How many multiples of 3 are there in between 20 and 200 ?

- (1) 50 (2) 55 (3) 60 (4) 65

Ans. (3)

Sol. Multiple of 3, between 20 and 200 are

21, 24, 27, , 198

Here $a = 21$

$$d = 3$$

$$a_n = 198$$

$n = \text{no. of multiple of '3'}$

then $a_n = a + (n - 1)d$

$$\Rightarrow 198 = 21 + (n - 1) 3$$

$$\Rightarrow \frac{198 - 21}{3} = n - 1$$

$$\Rightarrow 59 + 1 = n$$

$$\Rightarrow n = 60$$

52. The value of $(\cos 0^\circ + \sin 45^\circ + \sin 30^\circ)(\sin 90^\circ \cos 45^\circ + \cos 60^\circ)$ will be

(1) $\frac{4}{7}$

(2) $\frac{3}{2}$

(3) $\frac{5}{7}$

(4) $\frac{7}{4}$

Ans. (4)

Sol. Given $(\cos 0^\circ + \sin 45^\circ + \sin 30^\circ)(\sin 90^\circ \cos 45^\circ + \cos 60^\circ)$

$$= \left(1 + \frac{1}{\sqrt{2}} + \frac{1}{2}\right) \left(1 - \frac{1}{\sqrt{2}} + \frac{1}{2}\right)$$

$$= \left(1 + \frac{1}{2}\right)^2 - \left(\frac{1}{\sqrt{2}}\right)^2$$

$$= \frac{9}{4} - \frac{1}{2}$$

$$= \frac{9 - 2}{4} = \frac{7}{4}$$

53. If the ratio of the length of a vertical rod and the length of its shadow is 1 : 1 then angle of elevation of sun is

(1) 30°

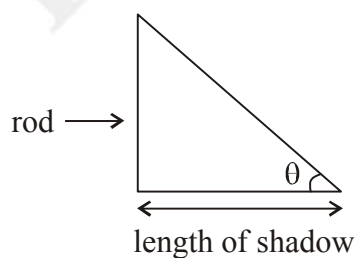
(2) 45°

(3) 60°

(4) 90°

Ans. (2)

Sol. Here $\tan \theta = 1 \Rightarrow \theta = 45^\circ$



54. Quadrilateral formed by the vertices $(1, 4)$, $(-5, 4)$, $(-5, -3)$ and $(1, -3)$ will be

(1) Square

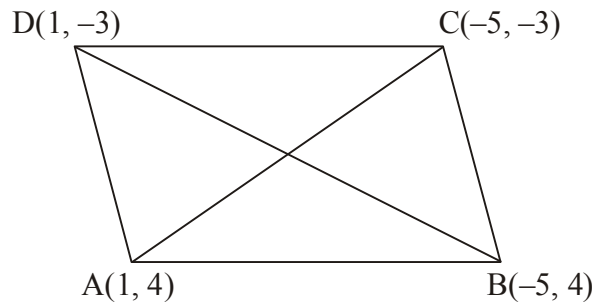
(2) Rectangle

(3) Rhombus

(4) None of these

Ans. (2)

Sol. Let A(1, 4), B(-5, 4), C(-5, -3) and D(1, -3)



$$AB = \sqrt{(1 - (-5))^2 + (4 - 4)^2} = \sqrt{36} = 6 \text{ unit}$$

$$BC = \sqrt{(-5 - (-5))^2 + (4 - (-3))^2} = \sqrt{49} = 7 \text{ unit}$$

$$CD = \sqrt{(-5 - 1)^2 + (-3 - (-3))^2} = \sqrt{36} = 6 \text{ unit}$$

$$AD = \sqrt{(1 - 1)^2 + (4 - (-3))^2} = \sqrt{49} = 7 \text{ unit}$$

diagonal

$$AC = \sqrt{(1 - (-5))^2 + (4 - (-3))^2} = \sqrt{(36) + 49} = \sqrt{85} \text{ unit}$$

$$BD = \sqrt{(-5 - 1)^2 + (4 - (-3))^2} = \sqrt{36 + 49} = \sqrt{85} \text{ unit}$$

Here opposite sides are equal and diagonals are equal then above is a rectangle.

55. The point of concurrence of three interior angle bisectors of a triangle is called

- (1) Centre of gravity (2) Circumcentre (3) Orthocentre (4) Incentre

Ans. (4)

Sol. The point of concurrence of three interior angle bisectors of a triangle is called Incentre

56. The areas of two similar triangles are 36 cm^2 and 81 cm^2 respectively. If the median of smaller triangle is 12 cm then the corresponding median of the larger triangle is

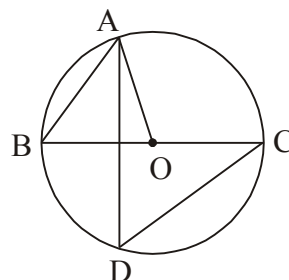
- (1) 12 cm (2) 18 cm (3) 24 cm (4) 10 cm

Ans. (2)

Sol. Ratio of area of two similar triangle is equal to ratio of square of their respective medians.

$$\frac{36}{81} = \left(\frac{12}{x}\right)^2 \Rightarrow x^2 = \frac{144 \times 9}{4} \Rightarrow x = \frac{12 \times 3}{2} = 18 \text{ cm}$$

57. In the given figure, BC is the diameter of a circle and $\angle BAO = 60^\circ$ then $\angle ADC$ is equal to



- (1) 30° (2) 45° (3) 60° (4) 90°

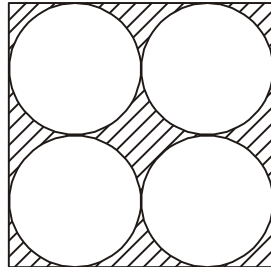
Ans. (3)

Sol. $AO = BO$ (both are radius)

so $\angle OAB = \angle OBA = 60^\circ$

Now we know that angle in same segment are equal So $\angle ABC = \angle ADC = 60^\circ$

58. Find the area of shaded portion in the figure given below, where ABCD is a square of side 28 cm.



(1) 784 cm^2

(2) 616 cm^2

(3) 668 cm^2

(4) 168 cm^2

Ans. (4)

Sol. side of square is 28 cm so radius of circle is 7 cm.

area of square = $(28)^2 = 784 \text{ cm}^2$

area of four circle = $4 \times \pi \times 7^2 = 616 \text{ cm}^2$

Area of shaded region = $784 - 616 = 168 \text{ cm}^2$

59. The mean of first eight prime numbers is

(1) 9.625

(2) 8.375

(3) 9.375

(4) 8.534

Ans. (1)

Sol. Mean = $\frac{2+3+5+7+11+13+17+19}{8} = \frac{77}{8} = 9.625$

60. A die is thrown once. The probability of getting an even number on the die is

(1) $\frac{1}{6}$

(2) $\frac{1}{3}$

(3) $\frac{1}{2}$

(4) $\frac{2}{3}$

Ans. (3)

Sol. Even numbers are 2, 4, 6

probability = $\frac{3}{6} = \frac{1}{2}$

61. Who of the following was not the courtier of Kanishka ?

(1) Charaka

(2) Megasthenes

(3) Nagarjuna

(4) Ashwaghosha

Ans. (2)

62. Who was the writer of 'Mudrarakshasa' ?

(1) Kalidasa

(2) Vishakhadatta

(3) Amar Singh

(4) Sudraka

Ans. (2)

63. The fourth Buddhist conference was organized during the reign of which ruler ?
 (1) Kanishka (2) Rudradaman (3) Ashoka (4) Chandragupta Maurya
Ans. (1)
64. Where is the 'Jantar-Mantar' situated ?
 (1) Sikar (2) Ajmer (3) Jaipur (4) Bikaner
Ans. (3)
65. Which one of the following incidents happened first ?
 (1) Non-Cooperation movement (2) Quit India movement
 (3) Simon Commission (4) Personal Satyagraha
Ans. (AC)
66. Which one of the following was not related to the Sikar Peasant Movement ?
 (1) Chetram (2) Tulchharam (3) Tikuram (4) Devlal
Ans. (4)
67. Match List - I with List - II and select the correct answer by choosing from the given codes:-
- | | |
|-------------------------|------------------------|
| (1) Flying Shuttle Loom | (i) Samuel Crompton |
| (2) Spinning Jenny | (ii) Richard Arkwright |
| (3) Water frame | (iii) James Hargreaves |
| (4) Mule | (iv) John Kay |
- | | a | b | c | d |
|--------|-----|-----|----|---|
| (1) i | ii | iii | iv | |
| (2) ii | iv | iii | i | |
| (3) iv | ii | iii | i | |
| (4) iv | iii | ii | i | |
- Ans.** (4)
68. Which one of the following is not correctly matched ?
 (1) Ropar - Punjab (2) Lothal - Haryana (3) Rangpur - Gujarat (4) Kalibanga - Rajasthan
Ans. (2)
69. Which ruler of Bharatpur is called 'The Plato of the Jat Caste' ?
 (1) Rajaram (2) Surajmal (3) Badan Singh (4) Chudaman
Ans. (2)
70. After the end of First World War, which treaty was made with Germany ?
 (1) Treaty of Versailles (2) Treaty of Triyana (3) Treaty of Newly (4) Treaty of Berlin
Ans. (1)

71. Who was the publisher of 'Samvad Koumudi' ?

- (1) Bal Gangadhar Tilak (2) Raja Rammohan Roy
(3) Dayanand Saraswati (4) Mahatma Gandhi

Ans. (2)

72. Which Prime Minister of India called multipurpose water projects as "The Temple of Modern India" ?

- (1) Pandit Jawaharlal Nehru (2) Rajiv Gandhi
(3) Indira Gandhi (4) Atal Bihari Vajpayee

Ans. (1)

73. Rabi crop is -

- (1) Rice (2) Gram (3) Maize (4) Soyabean

Ans. (2)

74. Which one of the following is the copper mine situated in Rajasthan ?

- (1) Morija - Banol (2) Degana - Bhakri (3) Zawar (4) Khetri - Singhana

Ans. (4)

75. Match List - I with List - II and select the correct answer by choosing from the given codes:-

List-I

(Iron and Steel Industries)

- (1) Durgapur
(2) Rourkela
(3) Bhilai
(4) Bokaro

List-II

(State)

- (i) Jharkhand
(ii) Chattisgarh
(iii) Orissa
(iv) West Bengal

- | | a | b | c | d |
|-----|----------|----------|----------|----------|
| (1) | iv | iii | ii | i |
| (2) | iv | iii | i | ii |
| (3) | i | ii | iii | iv |
| (4) | ii | i | iii | iv |

Ans. (1)

76. Which of the following is the highest population density district of Rajasthan ?

- (1) Jaipur (2) Bharatpur (3) Alwar (4) Dausa

Ans. (1)

77. "New Mangalore" seaport is located in which state of India ?

- (1) Karnataka (2) Tamil Nadu (3) West Bengal (4) Maharashtra

Ans. (1)

78. Which of the following is an atomic energy mineral ?

- (1) Coal (2) Petroleum (3) Beryllium (4) Natural Gas

Ans. (3)

79. Among the following the latitudinal extension of Rajasthan is :-

- (1) 23°3' East Latitude to 30° 12' East Latitude
- (2) 23°3' West Latitude to 30° 12' East Latitude
- (3) 23°3' North Latitude to 30° 12' North Latitude
- (4) 23°3' South Latitude to 30° 12' East Latitude

Ans. (3)

80. Which of the following rivers falls in the Arabian Sea ?

- (1) Tapti (2) Krishna (3) Kaveri (4) Mahanadi

Ans. (1)

81. What is 'Mavath' ?

- (1) Rainfall near the Malabar Coast in summer season
- (2) Warm winds which blow in Rajasthan in summer season
- (3) Rainfall due to Mediterranean cyclones in winter season
- (4) Cyclones of the Arabian sea

Ans. (3)

82. Which tree is known as 'Kalpa Vriksha' in Rajasthan ?

- (1) Rohira (2) Kair (3) Bair (4) Khejari

Ans. (4)

83. Among the following who is a supporter of the Pluralistic Theory of Democracy ?

- (1) J.S. Mill (2) T.H. Green (3) Hobbes (4) H.J. Laski

Ans. (4)

84. Who decides whether a bill is a money bill or not ?

- (1) Prime Minister (2) President (3) Speaker of Lok Sabha (4) Vice - President

Ans. (3)

85. Who has the right to declare a subject of the state list national importance ?

- (1) Rajya Sabha (2) Lok Sabha
- (3) State Legislative Assembly (4) State Legislative Council

Ans. (1)

86. At present how many high courts are there in India ?

- (1) 22 (2) 24 (3) 26 (4) 29

Ans. (2)

87. Which of the following are included in the State Government ?

- (1) Governor, Cabinet, Chief Minister (2) Judiciary, Executive, Chief Minister
- (3) State Legislature, Executive, Judiciary (4) Cabinet, State Legislature, Governor

Ans. (1)

88. Under which Article of the Constitution each high court has been established as a court of records ?

- (1) Article 215 (2) Article 216 (3) Article 221 (4) Article 222

Ans. (1)

89. Which Fundamental Right is given by the Constitution of India to protect all fundamental rights ?

- (1) Right to Liberty (2) Right to Constitutional Remedies
(3) Right against Exploitation (4) Right to Equality

Ans. (2)

90. The highest unit of Panchayati Raj system is _____.

- (1) Zilla Parishad (2) Panchayat Samiti (3) Gram Panchayat (4) Gram Sabha

Ans. (1)

91. When was the minimum age of 18 years for Franchise implemented in India ?

- (1) 1947 (2) 1955 (3) 1987 (4) 1989

Ans. (4)

92. Which Indian politician played an important role to make Non-alignment as a movement ?

- (1) Pandit Jawaharlal Nehru (2) Mahatma Gandhi
(3) Lal Bahadur Shastri (4) Sardar Vallabh Bhai Patel

Ans. (1)

93. Match List - I with List - II and select the correct answer by choosing from the given codes:-

- | | |
|---|----------------------------|
| (1) Permanent Chairman of the
Constituent Assembly | (i) B.N. Rao |
| (2) Legal Advisor of the Constituent Assembly | (ii) Dr. Rajendra Prasad |
| (3) Chairman of the Drafting Committee | (iii) Sachchidanand Sinha |
| (4) Temporary Chairman of
the Constituent Assembly | (iv) Dr. Bhim Rao Ambedkar |

- | a | b | c | d |
|---------|-----|-----|-----|
| (1) i | ii | iii | iv |
| (2) ii | i | iv | iii |
| (3) iii | iv | i | ii |
| (4) iv | iii | ii | i |

Ans. (2)

94. The nation with a capitalist economy is

- (1) Russia (2) China (3) Japan (4) Bulgaria

Ans. (3)

95. The White Revolution is related to:

- (1) Production of eggs (2) Production of Milk (3) Production of sugar (4) Production of rice

Ans. (2)

96. The institution calculating National Income in India is

- | | |
|--------------------------------------|------------------------|
| (1) Central Statistical Organization | (2) Finance Commission |
| (3) Central Bank | (4) NITI Aayog |

Ans. (1)

97. The World Trade Organization was established on

- | | | | |
|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|
| (1) 1 st January, 1935 | (2) 1 st April, 1935 | (3) 1 st January, 1995 | (4) 1 st April, 1995 |
|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|

Ans. (3)

98. The reason of inflation in India is

- | | |
|---|---|
| (1) Rapid growth in agricultural production | (2) Rapid growth in industrial production |
| (3) Low level of public expenditure | (4) High level of public expenditure |

Ans. (4)

99. The institutional source of credit is

- | | | | |
|------------------|---------------------|---------------------|------------|
| (1) Money lender | (2) Self help group | (3) Commercial Bank | (4) Trader |
|------------------|---------------------|---------------------|------------|

Ans. (3)

100. In India, cases of goods more than one crore of rupees can be filed by the consumer in

- | | |
|----------------------|---|
| (1) Block Forum | (2) District Forum |
| (3) State Commission | (4) National Consumer Protection Commission |

Ans. (4)