



CAREER POINT

NATIONAL TALENT SEARCH EXAMINATION(FIRST LEVEL)-2015

(For Students of Class X)

Scholastic Aptitude Test

02-11-2014

Time : 90 minutes

Max. Marks : 90

1. A person takes time t to go once around a circular path of diameter $2R$. The speed (v) of this person would be -

(1) $\frac{t}{2\pi R}$ (2) $\frac{2\pi R}{t}$ (3) $\frac{\pi R^2}{t}$ (4) $2\pi R t$

Ans. [2]

Sol. Velocity = $\frac{\text{Distance}}{\text{time}}$

\therefore Distance = total path length covered by a person
= circumference of the circle
= $2\pi r$

\therefore radius, $r = R$

\Rightarrow Distance = $2\pi R$

$$v = \frac{2\pi R}{t}$$

2. A body of mass 2 kg is moving on a smooth floor in straight line with a uniform velocity of 10 m/s. Resultant force acting on the body is -

(1) 20 N (2) 10 N (3) 2 N (4) zero

Ans. [4]

Sol. Given mass, $m = 2$ kg

\therefore Body is moving with uniform velocity

$$\therefore a = 0 \text{ m/s}^2$$

$$\therefore F = ma$$

$$F = 0(\text{zero})\text{N}$$



3. The S.I. unit of pressure is -
 (1) $N.m^2$ (2) N/m^2 (3) m^2/N (4) N/m

Ans. [2]

Sol. S.I. unit of pressure is N/m^2

$$\therefore \text{pressure (P)} = \frac{\text{Force(F)}}{\text{Area(A)}}$$

$$P = \frac{N}{m^2}$$

4. The frequency of a source of sound is 50 Hz. How many times does it vibrate in one minute ?
 (1) 50 (2) 300 (3) 3000 (4) 30000

Ans. [3]

Sol. Given : frequency of sound = 50 Hz.

Time = 1 min = 1×60 sec. = 60 sec.

No. of times it vibrate = $50 \times 60 = 3000$

5. A person of mass 50 kg runs up to staircase of 40 steps in 6 sec. If the height of each step is 15 cm, then his power will be (If $g = 10m/s^2$)
 (1) 300 W (2) 500 W (3) 600 W (4) 1000 W

Ans. [2]

Sol. Given : mass of person, $m = 50$ kg

Height (one staircase), $h = 15$ cm = 0.15 m

Total height, $h = 40 \times 0.15$ m

$$\therefore \text{Power, } P = \frac{mgh}{t} = \frac{50 \times 10 \times 0.15 \times 40}{6}$$

$$P = 500W$$

6. The focal length of a concave mirror in air is f . If it is immersed in water $\left(n = \frac{4}{3}\right)$, then the focal length will be -
 (1) f (2) $\frac{4}{3}f$ (3) $\frac{3}{4}f$ (4) $4f$

Ans. [1]

Sol. Focal length does not change with the medium. Therefore., focal length remains same i.e. f .

7. A student was asked to draw a ray diagram for formation of image by convex lens for the following positions of the object :
 (A) between F and $2F$ (B) at F
 (C) at $2F$ (D) between F and optical centre

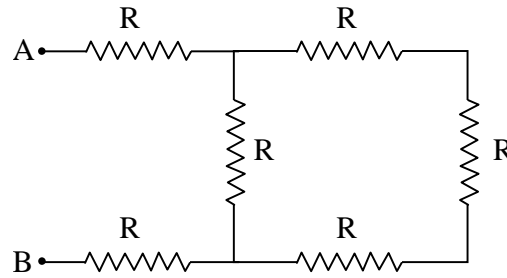
The position for which virtual image can be formed among these is -

- (1) B (2) A (3) C (4) D

Ans. [4]

Sol. A student was asked to draw a ray diagram for formation of image by a convex lens for the position of the object. When object placed between F and optical centre. The image is virtual.

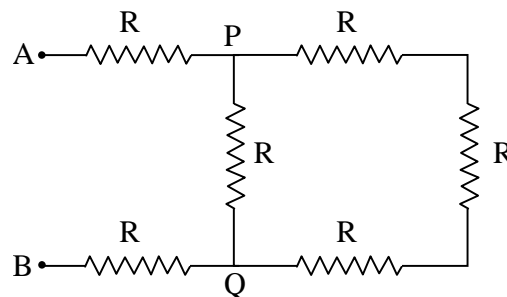
8. The value of equivalent resistance between the points A and B in the given circuit, will be –



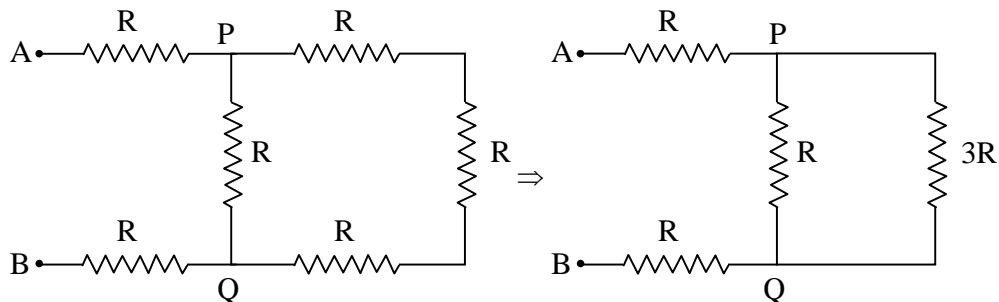
- (1) $6R$ (2) $\frac{4R}{11}$ (3) $\frac{11R}{4}$ (4) $\frac{R}{6}$

Ans. [3]

Sol.

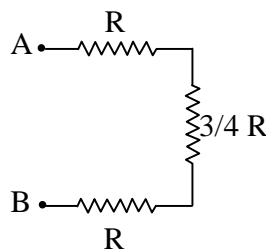


The effective resistance across PQ are connected in series. That means $3R$



Then across PQ $\rightarrow R \parallel 3R$

$$R' = \frac{3R \times R}{4R} \Rightarrow \frac{3}{4}R$$



All these are in series connection $\Rightarrow R + R + \frac{3}{4}R = \frac{11}{4}R$

9. The far point of myopic person is 75 cm in front of the eye. The nature and power of the lens required to correct the problem, will be -

- (1) convex lens, -1.33 D (2) concave lens, -1.33 D
 (3) concave lens, $+1.33\text{ D}$ (4) convex lens, $+1.33\text{ D}$

Ans. [2]

Sol. Given : Far point of a myopic eye is 75 cm.

For a myopic person,

Focal length, $f = -\text{far point}$

$$f = -75\text{ cm}$$

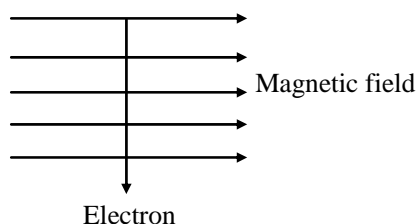
$$\therefore \text{power, } P = \frac{1}{f(\text{m})}$$

$$= -\frac{100}{f(\text{cm})} = \frac{100}{-75}$$

$$P = -1.33\text{D}$$

For myopic person, concave lens is used for correction.

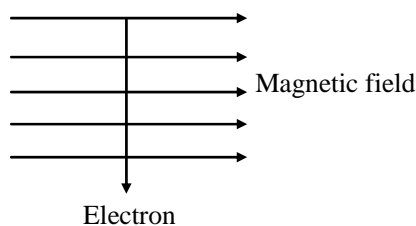
10. An electron enters in a magnetic field at right angle to it as shown in figure. The direction of force acting on the electron will be -



- (1) to the left (2) to the right (3) out of the page (4) into the page

Ans. [4]

Sol.



\therefore force is find out using 'Fleming's left hand rule'.

According to this rule, magnetic field is represented by fore-finger, current is represented by the middle finger and then force is represented by the thumbs, when all these three finger are stretched perpendicularly of our left hand.

In above question, current is in upward direction (opposite to flow of electron), magnetic field is towards right and therefore, according to Fleming's left hand rule, force will be into the page



11. When 1 J of work is done to move a charge of 1 C from one point to another point then the potential difference between two points in a given circuit will be-
- (1) 1 V (2) 4V (3) 8 V (4) zero

Ans. [1]

Sol. When 1 J of work done to move a charge of 1 C from one point to another then the potential difference between 2 points is 1V.

12. A certain household has consumed 200 units of energy during a month. Its value in joules will be -
- (1) 3.6×10^{10} (2) 7.2×10^{10} (3) 3.6×10^8 (4) 7.2×10^8

Ans. [4]

Sol. We know that,

$$1 \text{ unit} \Rightarrow 1 \text{ kWh}$$

$$1 \text{ kWh} = 3.6 \times 10^6 \text{ J}$$

For 200 units, of energy is

$$= 200 \times 3.6 \times 10^6 \text{ J}$$

$$\Rightarrow 7.2 \times 10^8 \text{ J}$$

13. On addition of which metal the blue coloured copper sulphate solution turns into colourless solution -
- (1) Ag (2) Hg (3) Zn (4) Au

Ans. [3]

Sol. Because Zn is more reactive than Cu, where as Ag, Hg & Au are least reactive refer reactivity series for order of reactivity.

14. IUPAC name of the first member of homologous series of ketones is-

(1) Ethanone (2) Propanol (3) Methanone (4) Propanone

Ans. [4]

Sol. Propanone



15. The nature of solution when sodium carbonate is dissolved in water will be -

(1) acidic (2) basic (3) neutral (4) amphoteric

Ans. [2]

Sol. $\text{Na}_2\text{CO}_3 + \text{H}_2\text{O} \rightarrow \underbrace{2\text{NaOH}}_{\text{Base}} + \text{CO}_2$

16. An element A belong to third period and second group of periodic table. The number of valence electron \electrons of element A is -

(1) one (2) two (3) three (4) four

Ans. [2]

Sol. ${}_{12}\text{Mg} = 2, 8, 2$



17. The chemical reaction $\text{HNO}_3 + \text{KOH} \rightarrow \text{KNO}_3 + \text{H}_2\text{O}$ is an example of –
 (1) neutralization (2) double displacement
 (3) neutralization and double displacement (4) combination

Ans. [3]

Sol. Neutralization and double displacement.

18. pH of a solution is zero. The nature of this solution is -
 (1) acidic (2) basic (3) neutral (4) amphoteric

Ans. [1]

Sol. Acidic, because for Acids pH range is 0 to 7 on pH scales.

19. The difference in number of crystalline water molecules in a molecule of gypsum and a molecule of plaster of Paris is -

- (1) $\frac{5}{2}$ (2) 2 (3) $\frac{1}{2}$ (4) $\frac{3}{2}$

Ans. [4]

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

Gypsum = $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

So difference of water of crystallization is $2 - \frac{1}{2} = \frac{3}{2} \text{H}_2\text{O}$

20. An alkyne has 4 numbers of hydrogen atoms. What will be the number of carbon atoms in it ?
 (1) Two (2) Three (3) Four (4) Five

Ans. [2]

Sol. It is propyne $\text{CH}_3 - \text{C} \equiv \text{CH}$

21. Number of molecules in 14 g of carbon monoxide is -
 (1) 12.044×10^{23} (2) 6.022×10^{23} (3) 3.011×10^{23} (4) 1.5050×10^{23}

Ans. [3]

Sol. Molecular mass of CO is = $12 + 16 = 28 \text{ g}$

So no. of moles in 14 g = $\frac{14}{28} = .5 \text{ mole}$

.5 mole has = $5 \times 6.022 \times 10^{23}$
 = 3.011×10^{23} molecules

22. The boiling point of a gas is -80°C . This temperature is equivalent to -
 (1) -193 K (2) 193 K (3) 353 K (4) -353 K

Ans. [2]

Sol. $\text{K} = ^\circ\text{C} + 273$

= $-80 + 273 = 193 \text{ K}$



23. Which of the following solutions does not show Tyndall effect ?
(1) Milk (2) Starch solution (3) Ink (4) Sugar solution
Ans. [4]
Sol. Because milk, starch solution & ink are colloidal in nature & hence tyndall effect is its characteristic.
24. The cell organelle storing substances like starch, oil and proteins is -
(1) Vacuole (2) Lysosome (3) Plastid (4) Golgi body
Ans. [3]
Sol. Plastid contain starch granules as well ribosome which produce proteins.
25. The hormone present in higher concentration in fruits and seeds is -
(1) Auxin (2) Gibberellin (3) Cytokinin (4) Ethylene
Ans. [3]
Sol. Cytokinin are found in site of active cell division in plants. Eg. In root tips, seeds, fruit & leaves.
26. The substance essential for photosynthesis is -
(1) glucose (2) oxygen (3) nitrogen (4) water
Ans. [4]
Sol. Water is raw material of photosynthesis & act as limiting factor.
27. In plants the cell necessary for exchange of gases from atmosphere are -
(1) subsidiary cells (2) bark cells (3) guard cells (4) phloem parenchyma cells
Ans. [3]
Sol. Guard cells help in closing and opening of stomata.
28. The group of amphibian plants is -
(1) Funaria, Marchantia (2) Marsilia, House-tail
(3) Pinus, Cycus (4) Typha, Hydrilla
Ans. [1]
Sol. Funaria & Marchantia are example of bryophyte this group is also called group of "Liver-worts".
29. The human made synthetic chemical used in refrigerator is -
(1) LPG (2) CFC (3) CH₄ (4) PVC
Ans. [2]
Sol. CFC is man made synthetic chemical used in refrigerator.
[Pg.262 of class NCERT]
30. The example of an egg laying mammal is -
(1) Bat (2) Whale (3) Echidna (4) Kangaroo
Ans. [3]
Sol. Echidna is a primitive egg laying mammals that lives in Australia & new guinea.

31. Which of the following follows a general principle of fooling the immune system by putting particular infection into the body ?

- (1) AIDS (2) Vaccination (3) Antibiotic (4) Antiseptic

Ans. [2]

Sol. In vaccination the insertion of inactive pathogen in body of an individual occur in order to develop immunity.

32. Skeletal muscles are

- (1) Striated and voluntary (2) Unstriated and voluntary
(3) Striated and involuntary (4) Unstriated and involuntary

Ans. [1]

Sol. Skeletal muscles are striated & voluntary.

33. Sphygmomanometer measures

- (1) Wall pressure (2) Blood pressure
(3) Diffusion pressure (4) Air pressure

Ans. [2]

Sol. Sphygmomanometer measures blood pressure.

34. Knightia is a fossil of

- (1) Tree trunk (2) Invertebrate (3) Fish (4) Dinosaur skull

Ans. [3]

Sol. Knightia is an extinct genus of clupeid clupeiform bony fish that lives in fresh water.

35. The method of mechanical barrier to avoid pregnancy is

- (1) Condoms (2) Contraceptive pills (3) Surgical methods (4) Abortion

Ans. [1]

Sol. Condoms is a mechanical barrier of contraception.

36. The value of $\left(\frac{x^b}{x^c}\right)^{\frac{1}{bc}} \cdot \left(\frac{x^c}{x^a}\right)^{\frac{1}{ca}} \cdot \left(\frac{x^a}{x^b}\right)^{\frac{1}{ab}}$ is equal to -

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

Ans. [1]

Sol. $\frac{x^{\frac{1}{c}}}{x^{\frac{1}{b}}} \cdot \frac{x^{\frac{1}{a}}}{x^{\frac{1}{c}}} \cdot \frac{x^{\frac{1}{b}}}{x^{\frac{1}{a}}} = 1$

37. The HCF of any two prime number a and b, is

- (1) a (2) ab (3) b (4) 1

Ans. [4]



38. The total two-digit numbers which are divisible by 5, are -
 (1) 17 (2) 18 (3) 19 (4) 20

Ans. [2]

Sol. 10, 15, 20 95 = 1

$$In = a + (n - 1)d$$

$$95 = 10 + (n - 1)5$$

$$17 = (n - 1)5$$

$$n = 18$$

39. If the roots of the equation $2x^2 + ax + b = 0$ are reciprocals to each other, then the value of b is
 (1) -1 (2) -2 (3) 2 (4) 1

Ans. [3]

Sol. $2x^2 + ax + b = 0$

$$x^2 + \frac{ax}{2} + \frac{b}{2} = 0$$

$$\frac{b}{2} = \text{Product of roots}$$

$$\alpha \times \frac{1}{\alpha} = \frac{b}{2} \Rightarrow b = 2$$

40. If $\sin(A + B) = \cos(A - B)$, then the value of $(A + B)$ is
 (1) $\frac{\pi}{4}$ (2) $\frac{\pi}{2}$ (3) $\frac{3\pi}{4}$ (4) $\frac{\pi}{8}$

Ans. [2]

Sol. $\sin(A + B) = \sin(90 - (A - B))$

$$A + B = n\pi + (-1) \left(\frac{\pi}{2} - (A - B) \right)$$

$$\Rightarrow A + B = \pi - \frac{\pi}{2} + (A - B)$$

$$\Rightarrow A + B = \frac{\pi}{2} + (A - B)$$

$$\Rightarrow 2B = \pi/2 = \frac{\pi}{4}$$

$$\Rightarrow A + B = \frac{\pi}{4} + \frac{\pi}{4} = \frac{2\pi}{4} = \frac{\pi}{2}$$

41. If $\sin \theta + \sin^2 \theta = 1$, then the value of $\cos^2 \theta + \cos^4 \theta$ is
 (1) 3 (2) 2 (3) 1 (4) 0

Ans. [3]

Sol. $\sin \theta + \sin^2 \theta = 1$

$$\Rightarrow \sin \theta = 1 - \sin^2 \theta = \cos^2 \theta$$

Now,

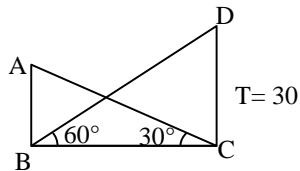
$$\cos^2 \theta + \cos^4 \theta = 1$$

$$\sin \theta + \sin^2 \theta = 1$$

42. The angle of elevation of the top of a building from the foot of tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60° . If the tower is 30m high, then the height of the building is -
 (1) 30 m (2) 20 m (3) 15 m (4) 10 m

Ans. [4]

Sol.



building tower

$$\frac{CD}{BC} = \tan 60^\circ$$

$$\frac{30}{BC} = \sqrt{3} \Rightarrow BC = \frac{30}{\sqrt{3}} \text{ m}$$

In $\triangle ABC$

$$\frac{AB}{BC} = \tan 30^\circ$$

$$\frac{AB}{BC} = \frac{1}{\sqrt{3}} \Rightarrow AB = \frac{BC}{\sqrt{3}} = \frac{30}{\sqrt{3} \times \sqrt{3}} = \frac{30}{3} = 10 \text{ m}$$

43. If the system of equations $3x + y = 1$, $(2k - 1)x + (k - 1)y = (2k + 1)$ has no solution, then the value of k is -
 (1) 2 (2) 3 (3) -2 (4) 1

Ans. [1]

Sol. $3x + y = 1$

$$(2k - 1)x + (k - 1)y = (2k + 1)$$

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

$$\Rightarrow \frac{3}{2k-1} = \frac{1}{k-1} \neq \frac{1}{2k+1}$$

$$3k - 3 = 2k - 1$$

44. The mean of the first ten even natural numbers is
 (1) 10 (2) 11 (3) 12 (4) 13

Ans. [2]

Sol. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

$$\text{mean} = \frac{n}{2}(a + l) \div n$$

$$\Rightarrow \frac{2 + 20}{2} = \frac{22}{2} = 11$$

45. A die is thrown twice. The probability of the sum being odd, is

- (1) $\frac{1}{2}$ (2) $\frac{1}{3}$ (3) $\frac{1}{4}$ (4) $\frac{1}{6}$

Ans. [1]

Sol. $p = \frac{m}{n}$

No. of favourable case

(1, 1)	(1, 2)	.....	(1, 6) =	3
(2, 1)	(2, 2)	.....	(2, 6) =	3
(3, 1)	(3, 2)	.....	(3, 6) =	3
(4, 1)	(4, 2)	.....	(4, 6) =	3
(5, 1)	(5, 2)	.....	(5, 6) =	3
(6, 1)	(6, 2)	.....	(6, 6) =	3

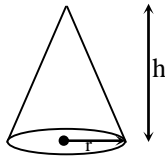
$$p = \frac{18}{36} = \frac{1}{2}$$

46. If the heights and radii of a cone and a hemisphere are same then the ratio of their volumes is

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

Ans. [1]

Sol.



Given $r = h$

$$\text{volume of cone} = \frac{1}{3} \pi r^2 h$$

$$\text{volume of hemisphere} = \frac{2}{3} \pi r^3$$

$$\frac{\text{V of cone}}{\text{V of H.sphere}} = \frac{\frac{1}{3} \pi r^2 h}{\frac{2}{3} \pi r^3} = \frac{h}{2r} \text{ (given } h = r \text{)}$$

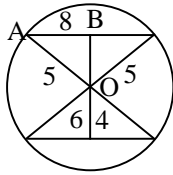
$$\frac{\text{V of cone}}{\text{V of H.sphere}} = \frac{1}{2}$$

47. The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at distance 4 cm from the centre, then the distance of the other chord from the centre is

- (1) 5 cm (2) 4 cm (3) 3 cm (4) 2 cm

Ans. [3]

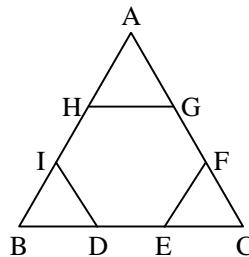
Sol.



Hence radius of circle = 5cm

In ΔOAB
 $AB^2 + OB^2 = AO^2$
 $4^2 + OB^2 = 5^2$
 $OB^2 = 25 - 16$
 $OB = 3$

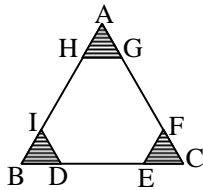
48. In the figure given below, ABC is an equilateral triangle. D, E, F, G, H and I are the trisector points of the sides as shown. If the side of the triangle ABC is 6 cm, then the area of the regular hexagon DEFGHI is



- (1) $3\sqrt{3} \text{ cm}^2$ (2) $4\sqrt{3} \text{ cm}^2$ (3) $5\sqrt{3} \text{ cm}^2$ (4) $6\sqrt{3} \text{ cm}^2$

Ans. [2]

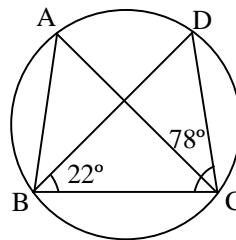
Sol.



Area of required hexagon DEFGHI = area of ΔABC – Area of triangles (shaded)

$$\Rightarrow \frac{\sqrt{3}}{4} \times (6)^2 - \frac{\sqrt{3}}{4} (2)^2 \times 3 \Rightarrow \frac{\sqrt{3}}{4} \times 36 - \frac{\sqrt{3}}{4} \times 4 \times 3 \Rightarrow 9\sqrt{3} - 3\sqrt{3} = 6\sqrt{3} \text{ cm}^2$$

49. In the given figure, $\angle DBC = 22^\circ$ and $\angle DCB = 78^\circ$ then $\angle BAC$ is equal to

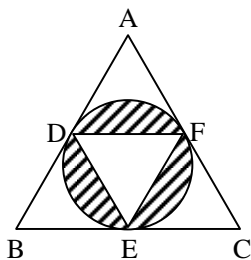


- (1) 90° (2) 80° (3) 78° (4) 22°

Ans. [2]

Sol. $\angle BDC = 180^\circ - (78 + 22^\circ)$; $180 - (100) = 80^\circ$
 $\angle BDC = \angle BAC = 80^\circ$

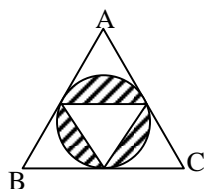
50. In the given figure, ABC is an equilateral triangle whose side is $2\sqrt{3}$ cm. A circle is drawn which passes through the midpoints D, E and F of its sides. The area of the shaded region is



- (1) $\frac{1}{4}(4\pi - 3\sqrt{3})\text{cm}^2$ (2) $\frac{1}{4}(2\pi - \sqrt{3})\text{cm}^2$
 (3) $\frac{1}{4}(\pi - 3\sqrt{3})\text{cm}^2$ (4) $\frac{1}{4}(3\pi - \sqrt{3})\text{cm}^2$

Ans. [1]

Sol.



height of $\triangle ABC$

$$\Rightarrow \frac{\sqrt{3}}{4} \times (2\sqrt{3})^2 = \frac{1}{2}h \times 2\sqrt{3}$$

$$h = 3\text{cm}$$

\therefore radius of circle = 1 cm

$$\Rightarrow \text{area of circle} \Rightarrow \pi \times A^2 = \pi \text{ cm}^2$$

area of inside triangle

$$\Rightarrow \frac{\sqrt{3}}{4} \times \left(\frac{2\sqrt{3}}{2}\right)^2 \Rightarrow \frac{\sqrt{3}}{4} \times 3 \Rightarrow \frac{3\sqrt{3}}{4} \text{ cm}^2$$

$$\text{area of shaded region} \Rightarrow \left(\pi - \frac{\sqrt{3}}{4}\right) \text{ cm}^2$$

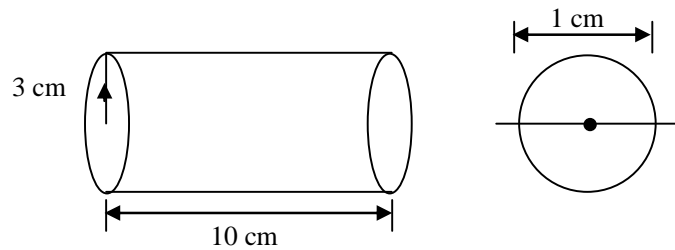
$$\Rightarrow \frac{1}{4}(4\pi - 3\sqrt{3}) \text{ cm}^2$$

51. If a cylinder of radius 3 cm and height of 10 cm is melted and recast into the shapes of small spheres of diameter 1 cm, then the number of spheres so formed is

- (1) 135 (2) 270 (3) 540 (4) 1080

Ans. [3]

Sol.



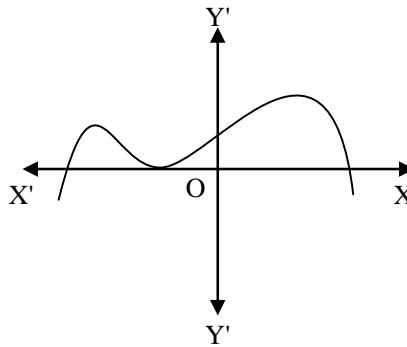
$$\frac{\text{Volume of Cylinder}}{\text{Volume of sphere}} = \text{Number of sphere}$$

$$\Rightarrow \frac{\pi \times r^2 h}{\frac{4}{3} \pi r^3} = \text{Number of sphere}$$

$$\Rightarrow \frac{3 \times 3 \times 10}{\frac{4}{3} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} = 3 \times 3 \times 10 \times 3 \times 2 \times 2 \times 2$$

$$\Rightarrow 540$$

52. The graph of $y = p(x)$ is given below. The number of zeroes of polynomial $p(x)$, is



(1) 3

(2) 2

(3) 1

(4) 0

Ans. [1]

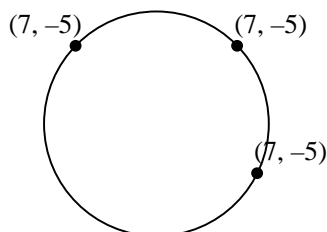
Sol. Number of zeros = 3

53. The centre of a circle passing through the points $(7, -5)$, $(3, -7)$ and $(3, 3)$ is -

(1) $(5, -6)$ (2) $(5, -1)$ (3) $(3, 2)$ (4) $(3, -2)$

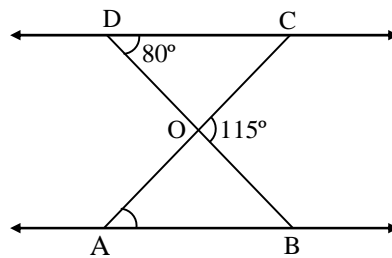
Ans. [4]

Sol.



$$\begin{aligned}
 W &= \sqrt{(x-7)^2 + (y+5)^2} = \sqrt{(x-3)^2 + (y+7)^2} \\
 \Rightarrow x^2 + 49 - 14x + y^2 + 25 + 10y &= x^2 + 9 - 6x + y^2 + 49 + 14y \\
 \Rightarrow 74 + 10y - 14x &= 9 - 6x + 49 + 14y \\
 \Rightarrow 74 + 10y - 14x &= 58 - 6x + 14y \\
 \Rightarrow 37 + 5y - 7x &= 29 - 3x + 7y \\
 \Rightarrow -y - 2x &= 4 = 0 \\
 \Rightarrow y + 2x - 4 &= 0 \quad \dots(i) \\
 \sqrt{(x-3)^2 + (y-3)^2} &= \sqrt{(x-3)^2 + (y+7)^2} \\
 y^2 = 9 - 6y &= y^2 + 49 + 14y \\
 \Rightarrow y &= -2 \\
 -2 + 2x - 4 &= 0 \\
 2x &= 6 \\
 x &= 3 \\
 \text{Centre point} &= (3, -2)
 \end{aligned}$$

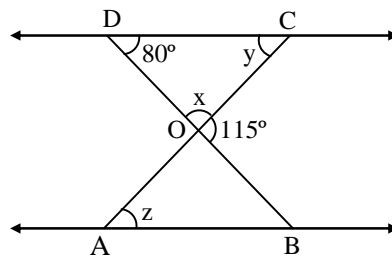
54. In the given figure, $\triangle ODC \sim \triangle OBA$, $\angle BOC = 115^\circ$ and $\angle CDO = 80^\circ$. Then $\angle OAB$ is equal to –



- (1) 80° (2) 35° (3) 45° (4) 65°

Ans. [2]

Sol. $\angle x = 180 - 115$



$$\begin{aligned}
 \Rightarrow 65^\circ \\
 \angle y &= 180 - (80 + 65) \\
 &= 180 - (145) = 35^\circ \\
 \angle y &= \angle z \text{ (alternative interior angle)} \\
 \text{So } \angle z &= \angle OAB = 35^\circ
 \end{aligned}$$



55. $\tan 43^\circ \tan 45^\circ \tan 47^\circ$ is equal to -

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

Ans. [3]

Sol. $\tan 43^\circ \tan 45^\circ \tan 47^\circ$

$$\Rightarrow \tan (90 - 47^\circ) \tan 45^\circ \tan 47^\circ$$

$$\Rightarrow \cot 47^\circ \tan 45^\circ \tan 47^\circ$$

$$\Rightarrow \frac{1}{\tan 47^\circ} \times 1 \times \tan 47^\circ = 1$$

56. The writer of 'The Social Contract' is -

- (1) Rousseau (2) Montesquieu (3) Tilak (4) Mirabeau

Ans. [1]

Sol. The writer of "The Social Contract" is Jean- Jacques Rousseau.

57. Napoleon Bonaparte was defeated at Waterloo in -

- (1) 1518 (2) 1815 (3) 1915 (4) 1819

Ans. [2]

Sol. Napoleon Bonaparte was defeated at Waterloo in 1815.

58. The world's biggest stock exchange 'Wall Street Exchange' is located in -

- (1) France (2) China (3) U.S.A (4) Japan

Ans. [3]

Sol. The world's biggest stock exchange 'Wall Street Exchange' is located in U.S.A.

59. Nazi youth group for children below 14 years of age was -

- (1) Storm Troopers (2) Gestapo (3) Jungvolk (4) Ghettoes

Ans. [3]

Sol. Nazi youth group for children below 14 years of age was Jungvolk.

60. 'Plant more wheat, wheat will win the war'. The statement is of -

- (1) President Wilson (2) Churchill (3) Tzar Nichlolas II (4) Franklin D. Roosevelt

Ans. [1]

Sol. 'Plant more wheat, wheat will win the war'. The statement is of U.S. President Wilson.

61. The tactful diplomatic alliance between Sardinia-Piedmont and France was engineered by -

- (1) Mazzini (2) Cavour (3) Garibaldi (4) Victor Emmanuel

Ans. [2]

Sol. Through a tactful diplomatic alliance with France engineered by Cavour, Sardinia-Piedmont succeeded in defeating the Austrian forces in 1859.

62. The film 'Raja Harishchandra' (1913) was made by -
 (1) Gulzar (2) Basu Bhattacharya (3) Dada Saheb Phalke (4) C. Ramchandran

Ans. [3]

Sol. The film 'Raja Harishchandra' (1913) was made by Dada Saheb Phalke.

63. Which novel is known as the first modern novel of Malayalam ?
 (1) Henrietta Temple (2) Pariksha Guru (3) Chandrakanta (4) Indulekha

Ans. [4]

Sol. The delightful novel called Indulekha, published in 1889, was the first modern novel in Malayalam.

64. In Trinidad the annual Muharram procession is known as -
 (1) Karvala (2) Hosay (3) Hassan (4) Haidos

Ans. [2]

Sol. In Trinidad the annual Muharram was transformed into a riotous carnival called 'Hosay' (for Imam Hussain) in which workers of all races & religions joined).

65. The proposal of 'Non-Cooperation Movement' was passed by Congress in the session held at -
 (1) Nagpur (2) Kanpur (3) Amritsar (4) Lucknow

Ans. [1]

Sol. The Congress Session at Nagpur in December 1920, a compromise was worked out & Non-Cooperation movement was adopted.

66. In India Tropic of Cancer passes through the state of -
 (1) Bihar (2) Orissa (3) Jharkhand (4) Uttar Pradesh

Ans. [3]

Sol. In India Tropic of Cancer passes through the state of Jharkhand.

67. Match List-I with List-II and select the correct answer –

	List-I		List-II	
	Peak		Height (metre)	
(A)	Mt. Everest		(i) 8598	
(B)	Kanchenjunga		(ii) 8481	
(C)	Makalu		(iii) 8848	
(D)	Dhaulagiri		(iv) 8172	
	A	B	C	D
(1)	iii	ii	iv	i
(2)	ii	i	iii	iv
(3)	i	iii	i	ii
(4)	iii	i	ii	iv

Ans. [4]

Sol. The correct match up is option (4)



68. Which of the following is not tributary of Ganga ?
(1) Yamuna (2) Satluj (3) Ghaghara (4) Kosi
Ans. [2]
Sol. Satluj is not the tributary of Ganga.
69. In India total forest area as per Forest Report, 2011 is -
(1) 21.05 % (2) 20.06 % (3) 22.07 % (4) 19.80 %
Ans. [3]
Sol. In India total forest area as per Forest Report, 2011 is 22.07 %.
70. Which state in India has Kaziranga National Park?
(1) Bihar (2) West Bengal (3) Jharkhand (4) Assam.
Ans. [4]
Sol. Kaziranga National Park is in the state, Assam which is in India.
71. Which type of resource is solar energy?
(1) Replenishable (2) Human-made (3) Biotic (4) Non-recyclable.
Ans. [1]
Sol. Solar energy is replenishable resource.
72. Hirakund Dam is situated on the river
(1) Godavari (2) Tapi (3) Mahanadi (4) Yamuna.
Ans. [3]
Sol. Hirakund Dam is situated on the river Mahanadi.
73. Non-food crop is
(1) Wheat (2) Rice (3) Cotton (4) Bajra.
Ans. [3]
Sol. Non-food crop is cotton.
74. Which of the following is a non-ferrous mineral?
(1) Bauxite (2) Manganese (3) Nickel (4) Cobalt.
Ans. [1]
Sol. Non-Ferrous mineral is Bauxite.
75. Seaport of India is
(1) Delhi (2) Hyderabad (3) Vishakhapatnam (4) Amritsar.
Ans. [3]
Sol. Seaport of India is Vishakhapatnam.

76. Match **List-I** with **List-II** and select the correct answer :

List-I

- (1) Union of India
(2) State
(3) Municipal Corporation
(4) Gram Panchayat

List-II

- (i) Prime Minister
(ii) Sarpanch
(iii) Governor
(iv) Mayor.

- (1) iv i ii iii
(2) ii iii iv i
(3) i iii iv ii
(4) iii iv I ii.

Ans. [3]

Sol. The correct match up is option (3).

77. The Government body which implements law is

- (1) Legislature (2) Judiciary (3) Executive (4) Press.

Ans. [3]

Sol. The government body which implements law is executive.

78. Who among the following is the founder of the Bahujan Samaj Party?

- (1) Kanshiram (2) Sahu Maharaj (3) B. R. Ambedkar (4) Jyotiba Phule.

Ans. [1]

Sol. The founder of Bahujan Samaj Party is Kanshiram.

79. In the context of assessing democracy which among the following is not according to democratic system?

- (1) Free and fair elections (2) Dignity of the individual
(3) Majority rule (4) Equal treatment before law.

Ans. [3]

Sol. Majority rule is not according to democratic system.

80. When did the Constitution of India come into effect?

- (1) 9th November, 1946 (2) 15th August, 1947
(3) 26th November, 1949 (4) 26th January, 1950

Ans. [4]

Sol. The constitution of Indian came into effect on 26 January, 1950.

81. What is the period of Indian Lok Sabha?

- (1) 3 years (2) 5 years (3) 6 years (4) 4 years.

Ans. [2]

Sol. The period of Indian Lok Sabha is 5 years.

82. Who is the highest formal authority of India?

- (1) President (2) Prime Minister (3) Governor (4) Chief Minister.

Ans. [1]

Sol. The highest formal authority of India is President.



- 83.** How many seats are reserved for Scheduled Tribes in the Lok Sabha?
 (1) 84 (2) 41 (3) 32 (4) 47.
Ans. [4]
Sol. 47 seats are reserved for scheduled tribes in the Lok Sabha.
- 84.** Which of the following rights is reserved number the Constitution of India?
 (1) Right to work (2) Right to adequate livelihood
 (3) Right to protect one's culture (4) Right to privacy.
Ans. [3]
Sol. Right to protect one's culture is reserved under the constitution of India as fundamental right "Cultural & Educational Right"
- 85.** What is the literacy rate of women in India ?
 (1) 54 % (2) 76 % (3) 36 % (4) 60 %
Ans. [1]
Sol. The literacy rate of women in India as per 2011 is 54%.
- 86.** Working capital is -
 (1) Computer (2) Generator (3) Building (4) Raw material
Ans. [4]
Sol. Working capital is raw material.
- 87.** Example of barter exchange is
 (1) Purchasing wheat with money (2) Purchasing fruits with money
 (3) Purchasing milk with money (4) Purchasing sugar with wheat
Ans. [4]
Sol. Example of barter exchange is purchasing sugar with wheat.
- 88.** Consumer Protection Act was enacted in India in
 (1) 1986 (2) 1982 (3) 1984 (4) 1988
Ans. [1]
Sol. Consumer protection Act was enacted in India in 1986.
- 89.** Suitable measure to compare economic development of two countries is
 (1) Gross Domestic Product (2) Gross National Product
 (3) Individual Income (4) Per Capita Income
Ans. [4]
Sol. Suitable measure to compare economic development of 2 countries is per capita income.
- 90.** Private sector's major objective is to -
 (1) Provide benefits to public (2) Provide benefits to government
 (3) Earn profits (4) Serve the people
Ans. [3]
Sol. Private sector's major objective is to earn profits.