

Date: 06/11/2016

Max. Marks: 100

SOLUTIONS

Time allowed: 90 mins

1. The brakes applied to a car produce an acceleration of 8 m/s^2 in the opposite direction to the motion. If the car takes 3 seconds to stop after the application of brakes, the distance it travels during the time will be—
 (1) 30 m (2) 36 m (3) 25 m (4) 40 m

Ans. (2)

Sol. Acceleration, $a = -8 \text{ m/s}^2$

Final velocity, $v = 0$

Time, $t = 3\text{s}$

From $v = u + at$
 $0 = u - (8 \times 3)$
 $u = 24 \text{ m/s}$

From $s = ut + \frac{1}{2}at^2$
 $s = 24(3) - \frac{1}{2}(8)(3)^2$
 $s = 72 - 36$
 $s = 36 \text{ m}$

2. A bullet of mass 10 gm moving with 100 m/s is embedded in a block of 1 kg which is initially in rest. The final velocity of the system will be—
 (1) 1 m/s (2) 1.5 m/s (3) 0.5 m/s (4) 2 m/s

Ans. (1)

Sol. From conservation of momentum,

$[(10 \times 10^{-3}) \text{ kg} \times 100 \text{ m/s}] + 0 = [1 + 10 \times 10^{-3}] \times v$
 $v \approx 1 \text{ m/s}$

3. The magnitude of buoyant force depends on which one of the following properties of fluid?
 (1) Mass of object (2) Size of object (3) Density of liquid (4) Size of container

Ans. (3)

Sol. Buoyant force, $F = V\rho g$
 $\therefore F$ depends on density of liquid

4. The value of 200 units of energy into joules will be—
 (1) $7.20 \times 10^8 \text{ J}$ (2) $7.20 \times 10^7 \text{ J}$ (3) $72 \times 10^8 \text{ J}$ (4) $7.20 \times 10^6 \text{ J}$

Ans. (1)

Sol. 1 unit = 1 KWh = $3.6 \times 10^6 \text{ J}$
 $\therefore 200 \text{ unit} = 200 \times 3.6 \times 10^6 = 7.2 \times 10^8 \text{ J}$

5. In which of the following media, the speed of sound will be maximum?
 (1) Glass (2) Ethanol (3) Air (4) Vacuum

Ans. (1)

Sol. Speed of sound is maximum in solids.

6. The weight of a body of mass 15 kg on moon is—
 (1) 24.5 N (2) 2.45 N (3) 245 N (4) 0.245 N

Ans. (1)

Sol. $W_{\text{moon}} = m \times g_{\text{moon}}$
 $= 15 \times \frac{9.8}{6}$
 $= 24.5 \text{ N}$

7. The work required to increase the velocity of a particle from 18 km/h to 72 km/h, if mass of particle is 2 kg, is—
 (1) 275 J (2) 225 J (3) 15 J (4) 375 J

Ans. (4)

Sol. From work energy theorem,
 $W = \Delta KE$
 Final velocity of body, $v = 72 \text{ km/h} = 20 \text{ m/s}$
 Initial velocity of body, $u = 18 \text{ km/h} = 5 \text{ m/s}$

$$W = \frac{1}{2}mv^2 - \frac{1}{2}mu^2$$

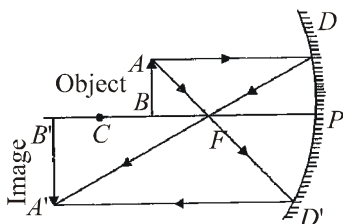
$$= \frac{1}{2} \times 2 [(20)^2 - (5)^2]$$

$$= 375 \text{ J}$$

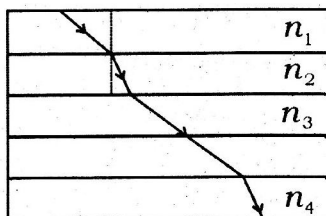
8. The image formed by a concave mirror is observed to be real, inverted and larger than the object. Where should be the position of the object?
 (1) At the centre of curvature (2) between the principal focus and centre of curvature
 (3) Beyond the centre of curvature (4) Between the pole of the mirror and its principal focus

Ans. (2)

Sol. When object is placed between F and C.



9. The path of ray of light in different media of refractive indices n_1, n_2, n_3 and n_4 is shown in figure. The velocity of light will be maximum in the medium whose refractive index is—



- (1) n_1 (2) n_2 (3) n_3 (4) n_4

Ans. (1 or 3)

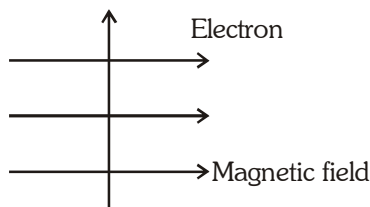
Sol. As shown in figure the light rays in medium of refractive index n_1 and n_3 appear parallel. So answer can be either (1) or (3).

- 10.** Which one of the following phenomena is an example of scattering of light?
 (1) Bending of rod at interface of air and water (2) Twinkling of stars
 (3) Tyndall effect (4) Mirage in desert during summer

Ans. (3)

Sol. In Tyndall effect, light rays are scattered by colloidal particles.

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



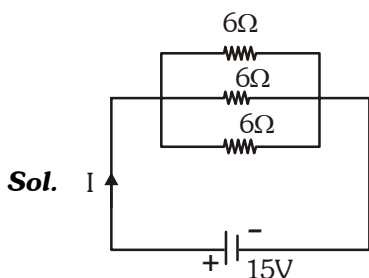
- (1) to the right (2) to the left (3) out of paper (4) into the paper

Ans. (3)

Sol. From Fleming's left hand rule, the direction of force experienced by electron is vertically outwards.

- 12.** Three $6\ \Omega$ resistors are connected in parallel and the combination is connected to a $15\ \text{V}$ battery. The current through any one of the resistors will be—
 (1) $2.5\ \text{A}$ (2) $2.0\ \text{A}$ (3) $5\ \text{A}$ (4) $10\ \text{A}$

Ans. (1)



Sol.

$$I = \frac{15}{(6/3)} = 7.5\ \text{A}$$

$$\therefore \text{Current through each resistor, } i = \frac{7.5}{3} = 2.5\ \text{A}$$

- 13.** The minimum order of temperature required for nuclear fusion is—
 (1) $10^{15}\ \text{K}$ (2) $10^6\ \text{K}$ (3) $10^3\ \text{K}$ (4) $10^2\ \text{K}$

Ans. (2)

Sol. Minimum temperature required for nuclear fusion to take place is $10^6\ \text{K}$.

- 14.** What will be the mass/mass percentage of a solution containing $30\ \text{gm}$ of common salt in $220\ \text{gm}$ of water?
 (1) 3% (2) 1.2% (3) 12% (4) 22%

Ans. (3)

Sol. Mass of solute (NaCl) = $30\ \text{gm}$
 Mass of solvent (Water) = $220\ \text{gm}$
 Total mass of solution = $220 + 30 = 250\ \text{gm}$

$$w/w\% = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100$$

$$w/w\% = \frac{30}{250} \times 100 = 12\%$$

15. Cheese is an example of which type of colloid?

- (1) Gel (2) Foam (3) Sol (4) Solid sol

Ans. (1)

Sol. Cheese is Gel type of colloidal solution

In Gel DP = liquid; DM = solid

16. Which process is used to separate a mixture of two miscible liquids A & B having boiling points 56°C and 65°C respectively?

- (1) Distillation (2) Fractional distillation (3) Sublimation (4) Steam distillation

Ans. (2)

Sol. Two miscible liquids A & B having b.p. 56°C & 65°C can be separated by fractional distillation technique, because the difference between their b.p. is less than 25°C.

17. Number of valence electrons in Magnesium is–

- (1) 12 (2) 10 (3) 8 (4) 2

Ans. (4)

Sol. Electronic configuration of Mg = 2, 8, 2

Valence electrons = 2

18. Total number of atoms in 4 gm of oxygen molecule is–

- (1) 6.022×10^{23} (2) 7.52×10^{22} (3) 1.5055×10^{23} (4) 0.0752×10^{23}

Ans. (3)

Sol. Mass of oxygen molecule = 4 gm

$$\text{Mole} = \frac{4}{32} = \frac{1}{8}$$

$$\text{Total molecules} = \frac{1}{8} \times 6.022 \times 10^{23}$$

∴ One molecule of O₂ has = 2 atoms of oxygen

$$\begin{aligned} \therefore \frac{1}{8} \times 6.022 \times 10^{23} \text{ of O}_2 \text{ has} &= \frac{2}{8} \times 6.022 \times 10^{23} \\ &= 1.5055 \times 10^{23} \text{ atoms} \end{aligned}$$

19. Number of which among the following is same in Al⁺³ and F⁻?

- (1) Proton (2) Neutron (3) Atomic mass (4) Electron

Ans. (4)

Sol. electronic configuration of Al³⁺ = 2, 8

electronic configuration of F⁻ = 2, 8

Both have same number of electrons in K and L shells.

20. Which of the following is the pH of a basic solution?

- (1) 7 (2) 4.2 (3) 6.9 (4) 10.2

Ans. (4)

Sol. The range of basic solution is 7.1 to 14.

21. Which metal does not react with oxygen at high temperature?

- (1) Mg (2) Al (3) Ag (4) Zn

Ans. (3)

Sol. Ag is very less reactive metal, which can't react with oxygen even at high temperature.

- 22.** Which reagent is able to dissolve gold and platinum?
 (1) Nitric acid (2) Aqua-regia (3) Hydrochloric acid (4) Sulphuric acid

Ans. (2)

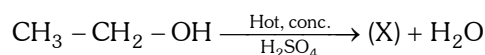
Sol. Aqua-Regia = A mixture of 3 part conc. HCl + 1 part conc. HNO₃
 It can dissolve all kind of metal in it.

- 23.** Which metal is most reactive?
 (1) Na (2) Ca (3) K (4) Zn

Ans. (3)

Sol. Most reactive metal is = Potassium (K)

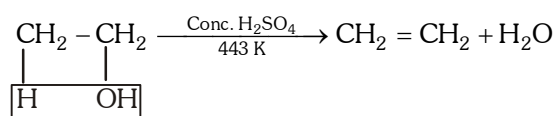
- 24.** Identify X in the following reaction –



- (1) Ethane (2) Methane (3) Ethene (4) Ethanol

Ans. (3)

Sol. Dehydration of alcohol



- 25.** Electronic configuration of an atom is 2, 8, 1. Which of the following elements is similar with it in chemical reactivity?

- (1) K (2) Cl (3) N (4) Ar

Ans. (1)

Sol. Electronic configuration of element = 2, 8, 1

This element resembles with K, due to same electronic configuration.

- 26.** Ethanol is made unfit for drinking by adding
 (1) Propanol (2) Methanal (3) Methanol (4) Ethanal

Ans. (3)

Sol. Ethanol is denatured by methanol or pyridine.

- 27.** In a cell which cell organelle other than nucleus contains DNA?

- (1) Lysosome (2) Golgi bodies (3) Endoplasmic reticulum (4) Mitochondria

Ans. (4)

Sol. Mitochondria has it's own DNA

- 28.** Which plant group is called amphibious plants?
 (1) Algae (2) Fungi (3) Bryophyta (4) Pteridophyta

Ans. (3)

Sol. Bryophyta are known as amphibians of Plant kingdom.

- 29.** The tissue which makes the plants hard and stiff is
 (1) Parenchyma (2) Chlorenchyma (3) Collenchyma (4) Sclerenchyma

Ans. (4)

Sol. Sclerenchyma contain lignin which makes it's stiff.

- 30.** Which of the following plant hormones induces cell division?
 (1) Auxin (2) Gibberellin (3) Ethylene (4) Cytokinin

Ans. (4)

Sol. Cytokinin induces cell division

31. The undifferentiated mass of cells in tissue culture is called

- (1) Tissue (2) Embryo (3) Callus (4) Spore

Ans. (3)

Sol. Callus is mass of undifferentiated cells.

32. Amrita Devi Visnoi of Rajasthan is related with

- (1) Plant conservation (2) Education (3) Sports (4) Politics

Ans. (1)

Sol. Amrita Devi Visnoi is related to plant conservation.

33. Which radiation harms ozone layer in the atmosphere?

- (1) Ultraviolet radiation (2) Infrared radiation (3) Radio radiation (4) Red radiation

Ans. (1)

Sol. Ultraviolet rays harms ozone layer in atmosphere.

34. Which cell organ is called "suicide bags"?

- (1) Centrosome (2) Chromosome (3) Lysosome (4) Mesosome

Ans. (3)

Sol. Lysosome is called as suicidal bag.

35. The lining of oesophagus and mouth is covered with which type of tissues?

- (1) Cuboidal epithelium (2) Squamous epithelium
(3) Columnar epithelium (4) Stratified squamous epithelium

Ans. (4)

Sol. Stratified squamous epithelium lines oesophagus and mouth.

36. Which is the odd one?

- (1) Planaria (2) Liver fluke (3) Ascaris (4) Tape-worm

Ans. (3)

Sol. Ascaris is a nematode where as rest all are flatworms.

37. An egg laying mammal is

- (1) Kangaroo (2) Bat (3) Whale (4) Echidna

Ans. (4)

Sol. Echidna is egg laying mammal.

38. Normal human blood pressure is

- (1) 80 / 120 mm of Hg (2) 120 / 80 mm of Hg (3) 100 / 80 mm of Hg (4) 80 / 100 mm of Hg

Ans. (2)

Sol. Normal B.P. is 120/80 mm of Hg

39. Central Nervous system consists of brain and

- (1) Spinal cord (2) Spinal nerves (3) Cranial nerves (4) All the nerves

Ans. (1)

Sol. Central Nervous system consists of brain and spinal cord.

40. *Raja Saurus* is a fossil of

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

Ans. (4)

Sol. *Raja Saurus* is a fossil of Dinosaur.

41. The cube root of

$$x + y + 3x^{1/3}y^{1/3}(x^{1/3} + y^{1/3}) \text{ is}$$

- (1) $x + y$ (2) $x^{1/3} + y^{1/3}$ (3) $(x + y)^{1/3}$ (4) $(x + y)^3$

Ans. (2)

Sol. $\sqrt[3]{(x^{1/3})^3 + (y^{1/3})^3 + 3x^{1/3}y^{1/3}(x^{1/3} + y^{1/3})}$

$$\sqrt[3]{[x^{1/3} + (y^{1/3})]^3}$$

$$(x)^{1/3} + (y)^{1/3}$$

Option (2) is correct

42. Expressing $0.\overline{23} + 0.\overline{23}$ as a single decimal, we get

- (1) $0.4\overline{65}$ (2) $0.4\overline{6\overline{5}}$ (3) $0.4\overline{6\overline{55}}$ (4) $0.46\overline{54}$

Ans. (2)

Sol. $0.\overline{23} + 0.\overline{23}$

$$\frac{23}{99} + \frac{23 - 2}{90}$$

$$\frac{23 \times 10}{99 \times 10} + \frac{21 \times 11}{90 \times 11}$$

$$\frac{230 + 231}{990}$$

$$= 0.4656565\dots\dots$$

$$= 0.4\overline{6\overline{5}}$$

Option (2) is correct

43. If $(x + \sqrt{2})$ is a factor of $kx^2 - \sqrt{2}x + 1$, then the value of k is

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

Ans. (1)

Sol. $(x + \sqrt{2})$ is a factor of $kx^2 - \sqrt{2}x + 1$

$$x = -\sqrt{2}$$

$$k(-\sqrt{2})^2 - \sqrt{2} \times (-\sqrt{2}) + 1 = 0$$

$$2k + 2 + 1 = 0$$

$$2k = -3$$

$$k = -\frac{3}{2}$$

Option (1) is correct

44. In the equations $3x + 2y = 13xy$ and $4x - 5y = 2xy$, the values of x and y that satisfy the equations are

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

Ans. (3)

Sol. $\frac{3x}{xy} + \frac{2y}{xy} = 13$

$$\frac{3}{y} + \frac{2}{x} = 13$$

Let $\frac{1}{y} = b$ & $\frac{1}{x} = a$

$$3b + 2a = 13 \dots\dots\dots(1)$$

similarly

$$\frac{4x}{xy} - \frac{5y}{xy} = 2 \Rightarrow \frac{4}{y} - \frac{5}{x} = 2$$

$$4b - 5a = 2 \dots\dots\dots(2)$$

Multiplying equation (1) by 4 and (2) by 3 and subtracting

$$12b + 8a = 52$$

$$12b - 15a = 6$$

$$\begin{array}{r} - \quad + \quad - \\ \hline 23a = 46 \end{array}$$

$$a = 2 \Rightarrow b = 3 \text{ using (1)}$$

$$\Rightarrow \frac{1}{x} = 2 \Rightarrow x = \frac{1}{2} \Rightarrow y = \frac{1}{3}$$

Option (3) is correct

45. The angles of elevation of the top of a tower from two points at a distance of 9m and 16m from the base of the tower and in the same straight line in the same direction with it are complementary. Then height of the tower is

- (1) 12 m (2) 15 m (3) 20 m (4) 25 m

Ans. (1)

Sol. $\tan \theta = \frac{h}{16}$

$$\tan(90 - \theta) = \frac{h}{9}$$

$$\tan \theta = \frac{h}{16} \dots\dots(1)$$

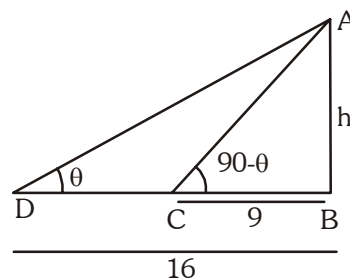
$$\cot \theta = \frac{h}{9} \dots\dots(2)$$

Multiplying equation (1) and (2)

$$\tan \theta \cdot \cot \theta = \frac{h}{16} \cdot \frac{h}{9} \Rightarrow 1 = \frac{h^2}{16 \times 9}$$

$$h^2 = 16 \times 9 = h = 4 \times 3 = 12 \text{ cm}$$

Option (1) is correct



46. If $\sin \theta = p$ and $\cos \theta = q$ then the value of $\frac{p-2p^3}{2q^3-q}$ is

- (1) $\sec \theta$ (2) $\operatorname{cosec} \theta$ (3) $\cot \theta$ (4) $\tan \theta$

Ans. (4)

Sol. $\frac{\sin \theta - 2\sin^3 \theta}{2\cos^3 \theta - \cos \theta}$

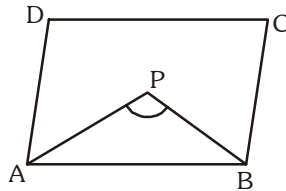
$$\frac{\sin \theta(1 - 2\sin^2 \theta)}{\cos \theta(2\cos^2 \theta - 1)}$$

$$\frac{\tan \theta(1 + 2\cos^2 \theta - 2)}{(2\cos^2 \theta - 1)} \quad \text{Use } \sin^2 \theta = 1 - \cos^2 \theta$$

$$\frac{\tan \theta(2\cos^2 \theta - 1)}{(2\cos^2 \theta - 1)} = \tan \theta$$

Option (4) is correct

47. If AP and BP are the bisectors of the angle A and angle B of a parallelogram ABCD, then value of the angle APB is



- (1) 30° (2) 45° (3) 60° (4) 90°

Ans. (4)

Sol. $\angle A + \angle B = 180^\circ$

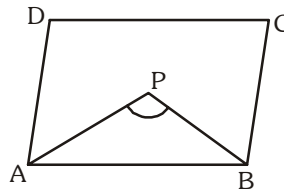
as A & B are adjacent angle of parallelogram.

$$\frac{1}{2}\angle A + \frac{1}{2}\angle B = 90^\circ$$

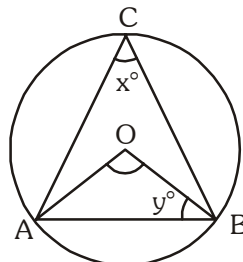
$$\text{Now in } \triangle APB = \frac{1}{2}\angle A + \frac{1}{2}\angle B + \angle P = 180^\circ$$

$$\angle P = 90^\circ$$

Option (4) is correct



48. In the following figure O is the centre of circle and $\angle ACB = x^\circ$, $\angle OBA = y^\circ$ then the value of $x^\circ + y^\circ$ is



- (1) 90° (2) 120° (3) 150° (4) 180°

Ans. (1)

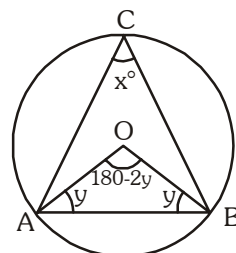
Sol. $\triangle OAB$ is isosceles

$$\Rightarrow \angle O = 180 - 2y$$

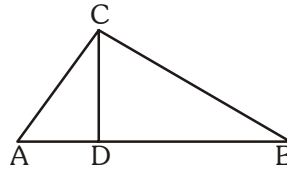
$$\angle O = 2\angle C \text{ [central angle property]}$$

$$180 - 2y = 2x$$

$$x + y = 90$$



49. In the following figure $\angle ACB = 90^\circ$ and $CD \perp AB$. If $AD = 4$ cm and $BD = 9$ cm then the ratio $BC : AC$ is



- (1) 3 : 2 (2) 2 : 3 (3) 16 : 81 (4) 81 : 16

Ans. (1)

Sol. $\triangle ADC \sim \triangle ACB$ (AA similarity)

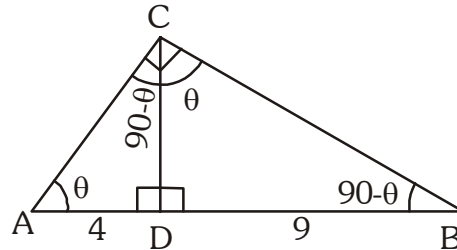
$$\Rightarrow \frac{AC}{13} = \frac{4}{AC}$$

$$\Rightarrow AC^2 = 13 \times 4$$

Now $\triangle BDC \sim \triangle BCA$ (AA similarity)

$$\frac{BC}{13} = \frac{9}{BC} \Rightarrow BC^2 = 13 \times 9$$

$$\frac{BC}{AC} = \frac{3}{2}$$



50. If in a right angled triangle the hypotenuse is to be 1 cm longer than the base and 2 cm longer than the altitude, then the perimeter of the triangle is

- (1) 24 cm (2) 20 cm (3) 12 cm (4) 10 cm

Ans. (3)

Sol. Given

$$c = a + 1 = b + 2$$

$$a = b + 1$$

$$c^2 = b^2 + a^2$$

$$(b+2)^2 = b^2 + (b+1)^2$$

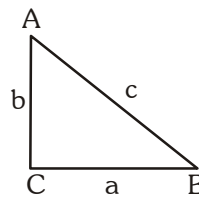
$$\Rightarrow b^2 - 2b - 3 = 0$$

$$(b = 3) \text{ as } (b \neq -1)$$

$$\Rightarrow c = 5, a = 4$$

so perimeter $a + b + c = 12$

Option (3) is correct



51. If the roots of a quadratic equation $2x^2 + 3kx + 8 = 0$ are equal, the value of k is:

- (1) $\pm \frac{2}{3}$ (2) $\pm \frac{3}{2}$ (3) $\pm \frac{3}{8}$ (4) $\pm \frac{8}{3}$

Ans. (4)

Sol. since roots are equal

$$D = 0$$

$$b^2 - 4ac = 0$$

$$9k^2 - 64 = 0 \Rightarrow k = \pm \frac{8}{3}$$

Option (4) is correct

52. If $a = x - y$, $b = y - z$ and $c = z - x$ then the value of $a^3 + b^3 + c^3$ is :

- (1) $3(x-y)(y-z)(z-x)$ (2) $(x-y)^3(y-z)^3(z-x)^3$
 (3) $(x+y+z)^3$ (4) $x^3 + y^3 + z^3$

Ans. (1)

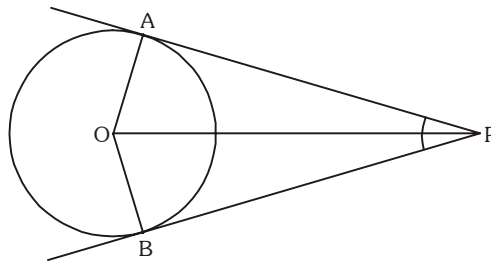
Sol. Since $a + b + c = 0$

$$\text{hence } a^3 + b^3 + c^3 = 3abc$$

$$= 3(x-y)(y-z)(z-x)$$

Option (1) is correct

53. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 110° , then $\angle POA$ is equal to:



- (1) 65° (2) 55° (3) 45° (4) 35°

Ans. (4)

Sol. $\triangle OAP \cong \triangle OBP$ by RHS, Option (4) is correct

54. Two coins are tossed once. The probability of getting at least one tail is :

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

Ans. (4)

Sol. $S = \{HH, HT, TH, TT\}$

$$E = \{HT, TH, TT\}$$

$$P(E) = \frac{3}{4}$$

Option (4) is correct

55. Value of $\tan 25^\circ \tan 35^\circ \tan 45^\circ \tan 55^\circ \tan 65^\circ$ is :

- (1) 0 (2) 1 (3) $\sqrt{2}$ (4) $\sqrt{3}$

Ans. (2)

Sol. $\cot 65^\circ \cdot \cot 55^\circ \cdot 1 \cdot \tan 55^\circ \cdot \tan 65^\circ = 1$

Option (2) is correct

56. The first term of an A.P. is 5, the last term is 45 and the sum is 400. Then the fourth term of A.P. is :

- (1) 13 (2) 11 (3) 15 (4) 14

Ans. (1)

Sol. $T_n = a + (n-1)d$
 $45 = (n-1)d$

$$S_n = \frac{n}{2}[a + l]$$

$$400 = \frac{n}{2}[5 + 45]$$

$$\Rightarrow n = 16$$

Now $T_n = a + (n-1)d$

$$45 = 5 + (16-1)d$$

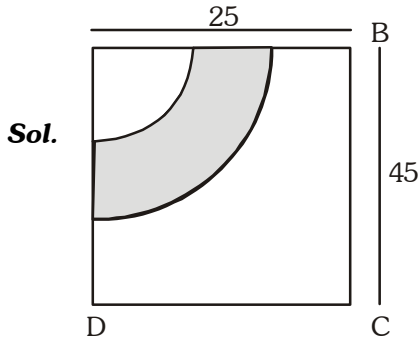
$$\Rightarrow d = \frac{8}{3}$$

$$T_4 = a + 3d = 13$$

57. A cow is tied with a rope of length 12 m at a corner of rectangular field of dimensions 25 m × 45 m. If the length of the rope is increased to 23 m, then the additional grassy area in which the cow can graze is (take $\pi = \frac{22}{7}$):

- (1) 300.5 m² (2) 312.5 m² (3) 315.5 m² (4) 320.5 m²

Ans. NA



$$\text{Shaded area} = \frac{1}{4} \times \pi (23^2 - 12^2) = 302.5 \text{ m}^2$$

58. If a metallic sphere of radius 6 cm is melted and recast into the shape of a cylinder of radius 3 cm, then the height of the cylinder is :

- (1) 30 cm (2) 25 cm (3) 35 cm (4) 32 cm

Ans. (4)

Sol. Volume of sphere = Volume of cylinder

$$\frac{4}{3} \pi R^3 = \pi r^2 h,$$

$$\frac{4}{3} \pi 6^3 = \pi 3^2 h$$

Hence 32 cm = h

59. If mode of any series is 5 and median is 3 then mean of that series is ::

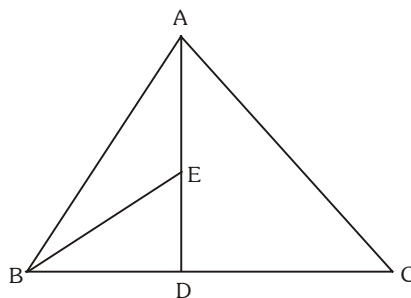
- (1) 1 (2) 2 (3) 3 (4) 4

Ans. (2)

Sol. Mode = 3 median – 2 mean

Hence mean = 2

60. In the following figure of triangle ABC, E is the midpoint of median AD. The ratio of areas of the triangles ABC and BED is :



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

Ans. (3)

Sol. In $\triangle ABD$ BE is median

Let Area $\triangle ABE = \triangle BED = x$

Area $\triangle ABD = 2x$

\Rightarrow Area $\triangle ADC = 2x$. as AD is median

\Rightarrow Area $\triangle ABC = 4x$

Now $\frac{\text{ar } \triangle ABC}{\text{ar } \triangle BED} = \frac{4}{1}$

61. Which among the following is not correctly matched in relation to the symbols of the French Revolution?

(Attribute) **(Significance)**

- (1) Broken chains – Being freed
- (2) Breast plate with eagle – Willingness to make peace
- (3) Sceptre – Symbol of royal power
- (4) The winged woman – Personification of the law

Ans. (2)

Sol. Breast Plate with an eagle - Symbol of the German empire – strength

62. Match List-I with List-II correctly and choose the correct code from the following :

List-I		List-II	
(A)	Napoleon defeated at Waterloo	(i)	1929
(B)	Formation of the Hindustan Socialist Republican Army	(ii)	1919
(C)	Formation of Comintern	(iii)	1928
(D)	Lahore Congress	(iv)	1815

A B C D

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

Ans. (2)

Sol.

63. Find out the correct explanation :

- (1) Livre : Unit of currency in France, discontinued in 1794
- (2) Clergy : Building belonging to a community devoted to a religious life
- (3) Tithe : Tax to be paid directly to the state
- (4) Taille : A tax levied by the church.

Ans. (1)

Sol. Livre - Unit of currency in France, discontinued in 1794

Clergy - Group of persons invested with special functions in the church

Tithe - A tax levied by the church, comprising one-tenth of the agricultural produce

Taille - Tax to be paid directly to the state

64. In which state of India is Gujranwala situated?

- (1) Gujarat (2) Rajasthan (3) Karnataka (4) Punjab

Ans. (4)

Sol. Gujranwala in Punjab, now in Pakistan- Page No. 56 Nationalism in India (NCERT).

65. Who wrote the novel 'Godan'?

- (1) Muhammad Basheer (2) Rabindranath Tagore
- (3) Bhudeb Mukhopadhyay (4) Premchand

Ans. (4)

Sol. Godan (The Gift of Cow), published in 1936, remains Premchand's best-known work.

Page No. 198, Novels (NCERT).

66. Who was Charles Dickens?

- (1) King (2) Novelist (3) Revolutionary (4) Monk

Ans. (2)

Sol. The most important feature of the magazine All the Year Round, edited by Charles Dickens, was his serialised novels. This line from NCERT, Page No. 179, explains that Charles Dickens was a novelist.

67. Pay attention on the following points :

(A) The Non-cooperation-Khilafat Movement began in January 1921

(B) In February 1922, Mahatma Gandhi decided to withdraw the Non-Cooperation Movement

Choose the correct answer from the codes given below :

- (1) Only (A) (2) Only (B) (3) Both (A) and (B) (4) None of these

Ans. (3)

Sol. Non-Cooperation and Khilafat movement were launched in January 1921. Page No. 66 -Nationalism in India. (NCERT)

In February 1922, Mahatma Gandhi decided to withdraw the Non-Cooperation Movement. Page No. 62 -Nationalism in India. (NCERT)

68. By which name is the tribe of camel herder called in West Rajasthan?

- (1) Bhakar (2) Faal (3) Bugyal (4) Dhandi

Ans. Bonus / (4)

Sol. Dhandi is the settlement of Maru Raikas who are the camel herder tribe of Western Rajasthan.

Option (4) correct as per hindi medium question.

69. Where was the Imperial Forest Reserach Institute established in 1906?

- (1) Dehradun (2) Calcutta (3) Udaipur (4) Bombay

Ans. (1)

Sol. The Imperial Forest Research Institute was set up at Dehradun in 1906. Page No. 84 -Forest , Society and Colonialism (NCERT).

70. Which one of the following incidents happens first?

- (1) Convocation of Estates General (2) Overthrow of the Jacobin Republic
(3) Debates over socialism in Russia (4) Proclamation of the Weimar Republic

Ans. (1)

Sol. 1789- Convocation of Estates General, Page No. 8 French Revolution (NCERT)

1792-93 - Overthrow of the Jacobin republic Page No. 8 French Revolution (NCERT)

1850s to 1880s - Debates over socialism in Russssia. Page No. 38 Russian Revolution (NCERT)

November 9, 1918 - Proclamation of the Weimar Republic. Page No. 70 Nazism (NCERT)

71. When was the first one-day international cricket match between England and Australia played?

- (1) 1971 (2) 1972 (3) 1973 (4) 1974

Ans. (1)

Sol. 1971 was a landmark year because the first one-day international was played between England and Australia in Melbourne. Page No. 154 The Story of Cricket (NCERT).

72. Approximately how much is land boundary of India?

- (1) 15200 km (2) 7516.6 km (3) 6100 km (4) 2000 km

Ans. (1)

Sol. India has a land boundary of about 15,200 km - Page No. 2 India, Size and Location (NCERT).

73. What is 'X' in the following map?



- (1) Jhelum River (2) Chenab River (3) Ravi River (4) Indus River

Ans. (1)

Sol. Fig. 3.4 , Page No. 19, Drainage- NCERT

74. How much is the length of Kaveri River?

- (1) 1400 km (2) 1500 km (3) 860 km (4) 760 km

Ans. (4)

Sol. Total length of Kaveri river is about 760 km. Page No. 22, Drainage (NCERT)

75. Which one of the following is the characteristic of cold weather season in India?

- (1) Warm days and Warm nights (2) Cold days and Cold nights
(3) Warm days and Cold nights (4) Cold days and Warm nights

Ans. (3)

Sol. Days are warm and nights are cold, Page No. 31 , Climate (NCERT)

76. Match List-I and List-II and choose the correct code from the following :

List-I		List-II	
(A)	Sunderbans	(i)	Uttarakhand
(B)	Nanda Devi	(ii)	Tamil Nadu
(C)	Gulf of Mannar	(iii)	Karnataka
(D)	Nilgiris	(iv)	West Bengal

- | | A | B | C | D |
|-----|----------|----------|----------|----------|
| (1) | (iii) | (ii) | (i) | (iv) |
| (2) | (ii) | (iii) | (iv) | (i) |
| (3) | (i) | (iv) | (iii) | (ii) |
| (4) | (iv) | (i) | (ii) | (iii) |

Ans. (4)

Sol. The Sunderbans in the West Bengal, Nanda Devi in Uttarakhand, the Gulf of Mannar in Tamil Nadu and the Nilgiris (Kerala, Karnataka and Tamil Nadu), Page No. 50, Natural Vegetation and Wildlife(NCERT).

77. According to the Census 2001, a 'literate' person is one who

- (1) can read and write his / her name
(2) can read and write in any language
(3) knows the three – reading, writing and arithmetic
(4) is above 7 years and can read and write any language with understanding

Ans. (4)

Sol. According to the Census of 2001, a person aged 7 years. and above who can read and write with understanding in any language, is treated as literate. Page No. 58, Population (NCERT).

78. Assertion (A) : Black soil has high capacity to hold moisture.

Reason (R) : Black soil develops in area with high temperature and heavy rainfall.

- (1) Both (A) and (R) are true and (R) explains (A)
(2) Both (A) and (R) are true but (R) does not explains (A)
(3) (A) is true and (R) is false
(4) (A) is false and (R) is true

Ans. (3)

Sol. Black Soil are well-known for their capacity to hold moisture. Page No. 10 , Resource and Development (NCERT).
The laterite soil develops in areas with high temperature and heavy rainfall. Page No. 10, Resource and Development (NCERT).

- 85.** Choose the correct statement describing the word 'code of conduct' :
- (A) A set of norms and guidelines to be followed by political parties
 (B) A set of norms and guidelines to be followed by candidates in Election
 (C) Guidelines for Election Commission
 (D) Compulsory voting for voters.
- (1) A, B, C (2) A, B (3) B, C (4) C, D

Ans. (2)

Sol. In addition to the laws, all the political parties in our country have agreed to a Model Code of Conduct for election campaigns.

Page No. 67, Electoral Politics (NCERT)

- 86.** Which of the following statements properly define the 'constitution'?
- (A) Constitution protects the rights of citizens
 (B) It determines the functioning of governments
 (C) It determines the process of legislation
 (D) It decides the name of person who is going to be the President
- (1) A, B, D (2) B, C (3) A, B, C (4) B, C, D

Ans. (3)

Sol. Page No. 44, Constitutional Design (NCERT)

87. Which one of the following is the Institution, functioning for international law, Security, Social equity and World peace?

- (1) International Monetary Fund (2) United Nations Organisation
 (3) World Bank (4) None of these

Ans. (2)

Sol. Democracy in the Contemporary World (NCERT)

88. Who among the following was the pioneer, to abolish caste inequality and establish social harmony?

- (1) Sir Sayed Ahmed Khan (2) Dadabhai Naoroji
 (3) W. C. Bonerjee (4) Dr. B. R. Ambedkar

Ans. (4)

Sol. Political leaders and social reformers like Jotiba Phule, Gandhiji, B.R. Ambedkar and Periyar Ramaswami Naicker advocated and worked to establish a society in which caste inequalities are absent

- 89.** Select the mismatched statement given below :
- (1) Democracy evolves through public struggles
 (2) Peaceful and non-violent struggles strengthen democracy
 (3) Democracy exists only through struggles
 (4) Freedom of expression is the identity of democracy

Ans. (3)

Sol. Popular Struggles & Movements (NCERT)

90. With reference to democratic system, which statement does not match?

- (1) Democracy and development go together
 (2) Inequality does not exist under dictatorship
 (3) Inequalities exist in democracy
 (4) Democracy provides freedom of expression and livelihood

Ans. (2)

Sol. Inequality exists under Dictatorship.

91. There are some statements with reference to power sharing in Indian democratic system. Select the irrelevant statement?

- (1) Participation of public in general election
 (2) Activeness of Gram Panchayat
 (3) Activities of Army
 (4) We participated in Gram Sabha

Ans. (3)

Sol. Activities of Army are not associated with power sharing arrangement.

- 92.** Homogeneous Society means
(1) Similar kind of cultural heritage
(2) Exist Caste based differences
(3) Absence of Community feeling
(4) Different kinds of living style of people

Ans. (1)

Sol. Homogeneous society: A society that has similar kinds of people, especially where there are no significant ethnic differences. Page No. 33, Democracy and Diversity (NCERT).

- 93.** Select the mismatched pair from the following names of organisations :
(1) Bhartiya Janata Party, Indian National Congress, Akali Dal
(2) Communist Party of India, Telugu Desam Party
(3) Akhil Bhartiya Vidyarthi Parisad, National Student Union of India
(4) Bahujan Samaj Party, Trinamool Congress

Ans. (3)

Sol. All others are political parties whereas, ABVP and National Student Union of India are pressure groups.

- 94.** Under 'Green Revolution' in India to increase the production of wheat and rice which of the following measures were adopted?

- (1) High Yielding varieties (2) Chemical fertilizers
(3) Irrigation facilities (4) All of these

Ans. (4)

Sol.

- 95.** For Human Capital Formation investment is done in which of the following?

- (1) Education and medical care (2) Education, training and medical care
(3) Education and entertainment (4) Medical care and entertainment

Ans. (2)

Sol. Page No. 16 , People as Resource (NCERT)

- 96.** The accepted average calorie requirements per person per day for rural and urban areas in India are
(1) 2400 calories and 2100 calories (2) 2100 calories and 2400 calories
(3) 2300 calories and 2000 calories (4) 2000 calories and 2300 calories

Ans. (1)

Sol. Poverty as a Challenge

- 97.** Annapurna Yojna was started in which year?

- (1) 1995 (2) 1996 (3) 2000 (4) 2004

Ans. (3)

Sol. Food Security

- 98.** 'Human Development Report' is published by

- (1) UNDP (2) UNESCO (3) WHO (4) WTO

Ans. (1)

Sol. Page No. 13, Development (NCERT).

- 99.** With development in India, in production sector, the importance of which sector has increased?

- (1) Primary sector (2) Secondary sector
(3) Tertiary sector (4) Primary and Secondary sector

Ans. (3)

Sol. Page No. 24, Sectors of Indian Economy(NCERT).

- 100.** Globalisation has enabled which large Indian company to emerge as multinational company?

- (1) Tata Motors (2) Infosys (3) Ranbaxy (4) All of these

Ans. (4)

Sol. Globalisation and the Indian Economy.