

Date: 24/01/2021

Max. Marks: 100

SOLUTIONS

Time allowed: 120 mins

Physics

1. In Circular motion which one
 (1) Constant Velocity (2) Zero Acceleration (3) Constant Speed (4) Speed changes

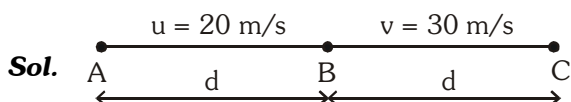
Ans. (3)

Sol. Speed is constant in uniform circular motion.

2. A car travels half distance with speed 20m/sec and next half distance travel with 30 m/sec the average speed of the car is

- (1) Zero (2) 25 m/sec (3) 24 m/sec (4) 5 m/sec

Ans. (3)



$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$V_{\text{avg.}} = \frac{2d}{t_{AB} + t_{BC}} \quad \dots (1)$$

$$\text{From A to B : speed} = \frac{\text{distance covered}}{\text{time taken}}$$

$$20 = \frac{d}{t_{AB}}$$

$$t_{AB} = \frac{d}{20} \quad \dots (2)$$

$$\text{From B to C : speed} = \frac{\text{distance covered}}{\text{time taken}}$$

$$30 = \frac{d}{t_{BC}}$$

$$t_{BC} = \frac{d}{30} \quad \dots (3)$$

From equation (1), (2) & (3)

$$V_{\text{avg}} = \frac{2d}{\frac{d}{20} + \frac{d}{30}} = \frac{2d}{\frac{3d + 2d}{60}}$$

$$V_{\text{avg}} = \frac{2d}{\frac{5d}{60}} = \frac{2d \times 60}{5d} = 24 \text{ m/s}$$

$$V_{\text{avg}} = 24 \text{ m/s}$$

3. A body is travelling with speed 20 m/sec having acceleration 4 m/sec² the speed of the body after 2 sec is
 (1) 8 m/sec (2) 12 m/sec (3) 16 m/sec (4) 28 m/sec

Ans. (4)

Sol. $u = 20$ m/s, $a = 4$ m/s², $t = 2$ s

By using first equation of motion

$$V = u + at = 20 + 4 \times 2 = 20 + 8$$

$$v = 28 \text{ m/s}$$

4. The weight of a body is 9.8 Newton, when $g = 9.8$ m/sec² the mass of the body is

- (1) Zero (2) 9.8 kg (3) 10 kg (4) 1 kg

Ans. (4)

Sol. $W = mg$

$$\frac{W}{g} = m$$

$$\frac{9.8}{9.8} = m$$

$$m = 1 \text{ kg}$$

5. Flying birds has

- (1) only kinetic energy (2) only potential energy
 (3) both kinetic energy and potential energy (4) only pressure energy

Ans. (3)

Sol. Flying birds has both kinetic and potential energy.

6. Two bodies of mass 2 gram and 4 gram having same kinetic energy having their ratio of linear momentum as

- (1) 2 : 1 (2) $\sqrt{2} : 1$ (3) 1 : 2 (4) 1 : 16

Ans. (2)

Sol. $P = \sqrt{2mK}$

For m_1 linear momentum is P_1 and kinetic energy is K_1

For m_2 linear momentum is P_2 and kinetic energy is K_2

Given : $K_1 = K_2$, $m_1 = 2g$, $m_2 = 4g$

$$P_1 = \sqrt{2m_1K_1} \quad P_2 = \sqrt{2m_2K_2}$$

$$\frac{P_1}{P_2} = \frac{\sqrt{2m_1K_1}}{\sqrt{2m_2K_2}} = \sqrt{\frac{2m_1K_1}{2m_2K_2}}$$

$$\frac{P_1}{P_2} = \sqrt{\frac{2g}{4g}} = \sqrt{\frac{1}{2}}$$

$$\frac{P_1}{P_2} = \frac{1}{\sqrt{2}} \Rightarrow \frac{P_2}{P_1} = \sqrt{2}$$

$$P_2 : P_1 = \sqrt{2} : 1$$

7. The ratio of gravitational acceleration on the surface of Earth and Moon is

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

Ans. (4)

Sol. $g_m = \frac{1}{6}g_e$

$$\frac{6}{1} = \frac{g_e}{g_m}$$

$$g_e : g_m = 6 : 1$$

8. The weight of a wooden block is w . the apparent weight of the body on a floating water

- (1) w (2) more than w (3) less than w (4) Zero

Ans. (4)

Sol. The apparent weight of the body on a floating water is zero.

9. In a simple Pendulum the displacement is equal to amplitude. Then kinetic energy will be

- (1) highest (2) Zero (3) No change (4) None

Ans. (2)

Sol. The kinetic energy is zero at highest point for simple pendulum.

10. Heat and work done by the heat discovered by

- (1) James Watt (2) Dr. D. Joule (3) Rudolf Diesel (4) Newcomen

Ans. (Bonus)

Sol. James prescott joule

11. The focal length of a convex lens is 20 cm. The image formed is double the length of the object. The distance of the object from the lens is

- (1) -30 cm (2) -20 cm (3) -60 cm (4) 30 cm

Ans. (1)

Sol. $f = +20$ cm, $m = -2$

$$m = \frac{v}{u}$$

$$-2 = \frac{v}{u}$$

$$v = -2u$$

Using lens formula

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

$$\frac{1}{-2u} - \frac{1}{u} = \frac{1}{f}$$

$$\frac{-1-2}{2u} = \frac{1}{20}$$

$$\frac{-3 \times 20}{2} = u$$

$$u = -30 \text{ cm}$$

- 12.** An Electric motor takes 37.5 Amp. to start. Then its efficiency is
 (1) 1 Horse Power (2) 500 Watt (3) 54 Watt (4) 750 Horse Power

Ans. (Bonus)

Sol. $I = 37.5 \text{ Amp.}, \quad V = 200 \text{ V} \quad P = V. I. = 200 \times 37.5 = 7500 \text{ watt}$

- 13.** The intensity of the bulb will decrease when a resistance is connected
 (1) In series (2) In parallel
 (3) Series or parallel (4) Intensity cannot be decreased

Ans. (1)

Sol. The intensity of the bulb will decrease when a resistance is connected in series.

Chemistry

- 14.** Assertion : 2-Bromobutane on reaction with sodium ethoxide in ethanol gives 2-butene as a major product.

Reason : 1-Butene is more stable than 2-butene.

Read the assertion and reason carefully to mark the correct option.

- (1) Both assertion and reason are true and the reason is the correct explanation of the assertion.
 (2) Both assertion and reason are true and the reason is not the correct explanation of the assertion.
 (3) Assertion is true but the reason is false.
 (4) Assertion is false but the reason is true.

Ans. (3)

Sol. Assertion is true but the reason is false.

- 15.** KO_2 (Potassium superoxide) is used in oxygen cylinders in space and submarines because it

- (1) absorbs CO_2 and increases O_2 content.
 (2) eliminates moisture
 (3) absorbs CO_2
 (4) produces Ozone

Ans. (1)

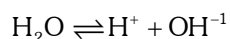
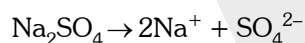
Sol. $4\text{KO}_2 + 2\text{CO}_2 \rightarrow 2\text{K}_2\text{CO}_3 + 3\text{O}_2$
 KO_2 absorbs CO_2 & increases O_2 content.

- 16.** A solution of sodium sulphate in water is electrolysed using inert electrodes. The products at the anode and cathode are respectively -

- (1) H_2, O_2 (2) O_2, H_2 (3) O_2, Na (4) O_2, SO_2

Ans. (2)

Sol. At anode O_2 & at cathode H_2



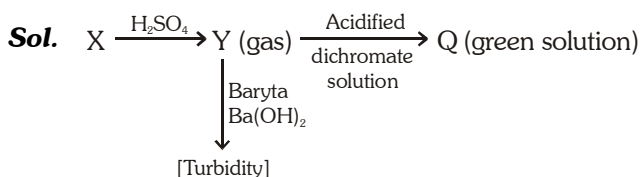
At cathode $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$

At anode $2\text{OH}^- \rightarrow \frac{1}{2}\text{O}_2 + \text{H}_2\text{O} + 2\text{e}^-$

17. A substance on treatment with dilute H_2SO_4 liberates a colourless gas which produces (i) turbidity with baryta solution and (ii) turns acidified dichromate solution green. The reaction indicates the presence of -

- (1) CO_3^{2-} (2) S^{2-} (3) SO_3^{2-} (4) NO_3^-

Ans. (3)



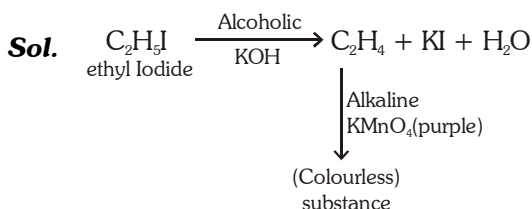
SO_2 gas changes di chromate (orange) to green substance.

So SO_2 can be produced if substance containing (SO_3^{2-}) reacts with dil. H_2SO_4 .

18. A gas formed by the action of alcoholic KOH on ethyl iodide decolourises alkaline KMnO_4 solution, the gas is -

- (1) CH_4 (2) C_2H_6 (3) C_2H_4 (4) C_2H_2

Ans. (3)



19. Given pH of a solution A is 3 and it is mixed with another solution B having pH 2. The resultant pH of solution will be -

- (1) 3.2 (2) 1.9 (3) 3.4 (4) 3.5

Ans. (Bonus)

Sol. A \rightarrow pH = 3; $[\text{H}^+] = 10^{-3}$; $M_1 = 10^{-3}$; $V_1 = V$

B \rightarrow pH = 2; $[\text{H}^+] = 10^{-2}$; $M_2 = 10^{-2}$; $V_2 = V$

$$M_1V_1 + M_2V_2 = M_3(V_1 + V_2)$$

$$10^{-3} \times V + 10^{-2} \times V = M_3(V + V)$$

$$0.1 \times 10^{-2} V + 10^{-2} V = M_3 \times 2V$$

$$M_3 = \frac{10^{-2}(0.1+1)V}{2V}$$

$$M_3 = \frac{1.1 \times 10^{-2}}{2} \Rightarrow M_3 = 0.55 \times 10^{-2}$$

$$[\text{H}^+] = 0.55 \times 10^{-2}$$

$$\text{pH} = -\log[\text{H}^+]$$

$$\text{pH} = -\log[0.55 \times 10^{-2}]$$

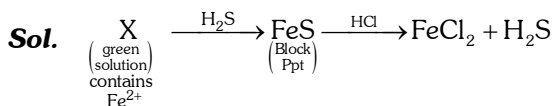
$$\text{pH} = 2 - (-0.259)$$

$$\text{pH} = 2.259$$

20. A light greenish salt is soluble in water. On passing H_2S gas into the solution, a black precipitate is obtained which dissolves readily in HCl . The metal ion present is -

- (1) Fe^{2+} (2) Co^{2+} (3) Ni^{2+} (4) Mn^{2+}

Ans. (1)

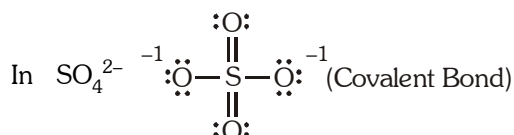


21. Bonds present in $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ are -

- (1) Electrovalent and Covalent (2) Electrovalent and Co-ordinate
(3) Electrovalent, Covalent and Co-ordinate (4) Covalent and Co-ordinate

Ans. (3)

Sol. In $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
Between $\text{Cu}^{2+} \text{SO}_4^{2-}$ (electrovalent bond)

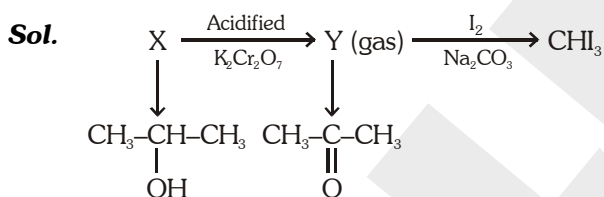


In $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, H_2O molecules forming co-ordinate bond with CuSO_4 .

22. An organic compound (X) on treatment with acidified $\text{K}_2\text{Cr}_2\text{O}_7$ gives a compound (Y) which reacts with I_2 and sodium carbonate to form tri-iodomethane. The compound (X) is -

- (1) CH_3OH (2) $\text{CH}_3\text{-}\overset{\text{O}}{\parallel}\text{-CH}_3$ (3) CH_3CHO (4) $\text{CH}_3\text{-}\underset{\text{OH}}{\text{CH}}\text{-CH}_3$

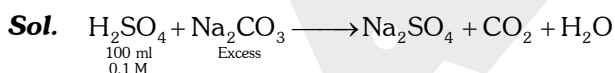
Ans. (4)



23. How many litres of CO_2 at STP will be formed when 100 ml of 0.1 M H_2SO_4 reacts with excess of Na_2CO_3 ?

- (1) 22.4 (2) 2.24 (3) 0.224 (4) 5.6

Ans. (3)



1 Mole of H_2SO_4 $\xrightarrow{\text{Produces}}$ 1 mole of CO_2

10 milli moles $\xrightarrow{\text{Produces}}$ 10 milli moles of CO_2

1 mole of CO_2 molecules occupies 22.4 L

10 milli moles of CO_2 occupy = $10 \times 10^{-3} \times 22.4 \text{ L}$

= $10^{-2} \times 22.4 \text{ L}$

= 0.224 L

- 24.** Which compound has the weakest bond ?
(1) Diamond (2) Neon (solid) (3) KCl (4) Water (ice)

Ans. (2)

Sol. In Neon (solid) weak van der waal forces are present
Diamond [Covalent Bond]
In KCl [Ionic Bond]
In H₂O [Hydrogen Bond]

- 25.** Which one of the following is used as antiknock compound ?
(1) Lead tetrachloride (2) Lead acetate (3) Lead formate (4) Tetraethyl lead

Ans. (4)

Sol. Tetraethyl lead is used as anti knock compound

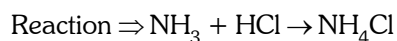
- 26.** A bottle of ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends. The white ammonium-chloride ring first formed will be -
(1) At the centre of the tube (2) Near the hydrogenchloride bottle
(3) Near the ammonia bottle (4) Throughout the length of the tube

Ans. (2)

Sol. Mass of NH₃ = 17 m
Mass of HCl = 36.5 m

$$\text{Rate of diffusion} \propto \frac{1}{\sqrt{\text{mass}}}$$

So NH₃ gas will diffuse at faster rate than HCl, So, white ammonium chloride will get formed near HCl bottle.



Biology

- 27.** The Xylem are responsible for -
(1) Transport of food in plants (2) Transport of water in plants
(3) Transport of amino acids (4) Transport of oxygen

Ans. (2)

Sol. In plants xylem tissue is responsible for transport of water & minerals from roots to upper parts of plants.

- 28.** Which of the following is not a polymer
(1) Cellulose (2) Glycogen (3) Protein (4) Glucose

Ans. (4)

Sol. Glucose is a monomer unit of complex carbohydrates. It is a simple sugar(monosaccharide).

- 29.** The disease that affects our lungs is -
(1) AIDS (2) Rabies (3) Polio (4) Tuberculosis

Ans. (4)

Sol. Bacteria causing tuberculosis infect and affect human lungs.

30. Which of the following is not a plant hormone ?

- (1) Auxin (2) Florigen (3) Cytokinin (4) Oxytocin

Ans. (4)

Sol. Oxytocin is an animal hormone while auxin, florigen and cytokinin are plant hormones.

31. Select the odd one from the following :

- (1) Stigma : Style : Ovary (2) Anther : Filament: Pollen
(3) Cotyledon : Radicle : Plumule (4) Pollen : Pollen tube : Pellicle

Ans. (4)

Sol. Pollen : Pollen tube : Pellicle is odd one out as pollen and pollen tube are reproductive parts of plant and pellicle is a protein covering over some cells.

32. The mode of nutrition in Fungi is -

- (1) Autotrophic nutrition (2) Holozoic nutrition
(3) Saprotrophic nutrition (4) Parasitic nutrition

Ans. (3)

Sol. Fungi feed upon dead and decaying material and this mode of nutrition is saprotrophic nutrition.

33. Which of the following composition represents energy rich food ?

- (1) Vitamins and minerals (2) Carbohydrates and fats
(3) Water and roughage (4) Proteins and mineral salts

Ans. (2)

Sol. Carbohydrates and fats are high energy rich food.

34. The products obtained during anaerobic respiration in plants are -

- (1) Lactic acid + Energy (2) Pyruvic acid + Energy
(3) Ethanol + Carbon dioxide + Energy (4) Carbon dioxide + Energy

Ans. (3)

Sol. Products of anaerobic respiration in plants are ethanol, carbon dioxide & energy.

35. What will happen if all the deer are killed in the given food chain ?

Grass — Deer — Lion

- (1) The population of Lion increase (2) The population of grass decrease
(3) The population of Lion decrease and grass increase (4) The population of Lion remain unchanged

Ans. (3)

Sol. If deers are killed then there will be less food available for lions which decrease their population while no one will be there to feed upon grass so the population of grass will increase.

36. The pores in a leaf through which respiratory exchange of gases takes place are -

- (1) Xylem (2) Stigma (3) Lenticels (4) Stomata

Ans. (4)

Sol. Stomata are the pores present in leaf that are responsible for gaseous exchange.

37. When we destroy forest, we destroy -

- (1) Population of wild life (2) The trees
 (3) The environment (4) Food and shelter of wild animals

Ans. (4)

Sol. If we destroy forest it will directly destroy food and shelter of wild animals.

38. Which of the following is not a natural resources ?

- (1) Soil (2) Water (3) Electricity (4) Air

Ans. (3)

Sol. Electricity is produced by humans, so it is not a natural resource.

39. Pure Bred Pea Plant A is crossed with pure bred pea plant B. It is found that the plants which look like A do not appear in F₁ generation but re-emerge in F₂ generation, which of the plants A and B are tall and dwarf ?

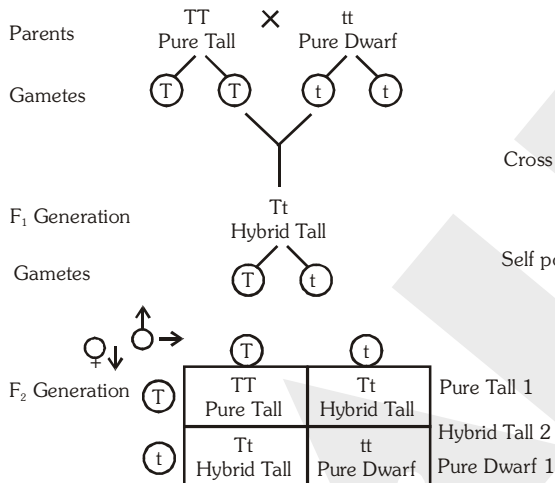
- (1) A are tall and B are also tall (2) A are tall and B are dwarf
 (3) A are dwarf and B are tall (4) A are dwarf and B are also dwarf

Ans. (3)

Sol. Pure breed plant A × Pure breed plant B

F₁ Generation : Only B type plant

Means A is recessive trait, which re-emerges in F₂ generation



So A is dwarf pea plant while B is tall pea plant.

40. Pick the right combination of terms which has no fossil fuel -

- (1) Wind, Wood, Sun (2) Kerosene, Wind, Tide
 (3) Petroleum, Wood, Sun (4) Wind, Ocean, Coal

Ans. (1)

Sol. Wind, wood and sun are natural fuel (Not fossil fuels.)

Mathematics

41. Three numbers prime to each other are such that the product of the first two is 437 and the product of the last two is 551. The sum of the numbers is.....

- (1) 59 (2) 63 (3) 69 (4) 71

Ans. (4)

Sol. Let three prime numbers are x, y, z

A.T.Q.

$$437 = x \times y = 19 \times 23$$

$$\text{and } 551 = y \times z = 19 \times 29$$

$$\therefore y = 19, x = 23, z = 29$$

$$\therefore x + y + z = 19 + 23 + 29 = 71$$

42. If the sum of the remainders obtained by dividing each of $x^3 + 8x^2 - 3kx + 7$ and $2x^3 + kx^2 - 5x + 6$ by $x - 1$ is 9 then $K = \dots\dots$

- (1) 0 (2) 2 (3) 3 (4) 5

Ans. (4)

Sol. $p(x) = x^3 + 8x^2 - 3kx + 7$

$$p(1) = 1 + 8 - 3k + 7 = 16 - 3k$$

$$q(x) = 2x^3 + kx^2 - 5x + 6$$

$$q(1) = 2 + k - 5 + 6 = 3 + k$$

Now, as we have

$$p(1) + q(1) = 9$$

$$\Rightarrow (16 - 3k) + (3 + k) = 9$$

$$\Rightarrow 10 = 2k$$

$$\Rightarrow k = 5$$

43. A polynomial of degree 2 is divided respectively by $x - 1, x - 2$ and $x - 3$. The remainders obtained are 1, 2 and 3 respectively. The polynomial is.....

- (1) $x^2 - x + 1$ (2) $x^2 - x + 1$ (3) $\frac{1}{2}x^2 - \frac{1}{2}x + 2$ (4) None of these

Ans. (4)

Sol. Let quadratic poly be $p(x) = ax^2 + bx + c$

$$p(1) = 1 \Rightarrow a + b + c = 1 \quad \dots (1)$$

$$p(2) = 2 \Rightarrow 4a + 2b + c = 2 \quad \dots (2)$$

$$p(3) = 3 \Rightarrow 9a + 3b + c = 3 \quad \dots (3)$$

By solving equations (1), (2), (3)

we get $a = 0$

\therefore So, Quadratic polynomial can't be formed.

- 44.** If the equations $x^2 + bx + a = 0$ and $x^2 + ax + b = 0$, ($a \neq b$) have equal roots, then $a + b = \dots$
 (1) -1 (2) 0 (3) 1 (4) None of these

Ans. (4)

Sol. $x^2 + bx + a = 0$ and $x^2 + ax + b = 0$

For equal roots, we have

$$D = 0 \text{ and } D' = 0$$

$$\Rightarrow b^2 - 4a(1) = 0 \text{ and}$$

$$\Rightarrow a^2 - 4(b)(1) = 0$$

$$\text{Now, } b^2 - 4a = a^2 - 4b = 0$$

$$\Rightarrow b^2 - a^2 = 4a - 4b$$

$$\Rightarrow (b - a)(b + a) = -4(b - a)$$

$$\therefore a + b = -4$$

- 45.** In a right-angled triangle, the difference of the hypotenuse and the base is 2 cm. The hypotenuse exceeds twice the height by 1 cm. The base of the triangle is cm.

- (1) 8 (2) 15 (3) 17 (4) 21

Ans. (2)

Sol. According to question

$$\Rightarrow x - y = 2 \quad \dots (1)$$

$$\Rightarrow x - 2z = 1 \quad \dots (2)$$

In $\triangle ABC$

$$\Rightarrow x^2 = y^2 + z^2 \quad (\text{By pythagoras theorem})$$

$$\Rightarrow x^2 = (x - 2)^2 + \left(\frac{x - 1}{2}\right)^2 \quad (\text{By using equation (1) \& (2)})$$

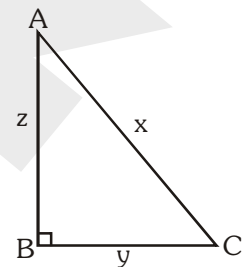
$$\Rightarrow x^2 = x^2 - 4x + 4 + \frac{x^2 + 1 - 2x}{4}$$

$$\Rightarrow x^2 - 18x + 17 = 0$$

$$\Rightarrow (x - 17)(x - 1) = 0$$

$$\Rightarrow x = 17, x = 1 \text{ (not possible)}$$

$$\therefore \text{Base} = y = x - 2 = 17 - 2 = 15$$



- 46.** By adding 1 to the sum of all natural numbers between 1 and 300, which are divisible by 7 and 8 a number p is obtained, then $+\sqrt{p} = \dots$

- (1) 25 (2) 29 (3) 33 (4) 37

Ans. (2)

Sol. Series 56, 112, 280

$$\text{Sum} = 56 + 112 + \dots + 280$$

$$= 56(1 + 2 + 3 + 4 + 5) = 56 \times 15 = 840$$

$$P = \text{sum} + 1 = 840 + 1 = 841$$

$$\text{Now } +\sqrt{p} = +\sqrt{841} = 29$$

47. If in an A.P., the p^{th} term = $\frac{1}{q}$ and the q^{th} term = $\frac{1}{p}$, then the pq^{th} term

(1) -1

(2) 0

(3) 1

(4) None of these

Ans. (3)

Sol. $T_p = \frac{1}{q} = a + (p - 1)d \quad \dots(1)$

$T_q = \frac{1}{p} = a + (q - 1)d \quad \dots(2)$

From eq (1) - eq (2)

$$\Rightarrow (p - q) = \frac{1}{q} - \frac{1}{p} = \frac{p - q}{pq} \Rightarrow \boxed{d = \frac{1}{pq}}$$

Put in eq. (1) $\Rightarrow a + (p - 1)\frac{1}{pq} = \frac{1}{q} \Rightarrow \boxed{a = \frac{1}{pq}}$

Now $T_{pq} = a + (pq - 1)d = \frac{1}{pq} + (pq - 1)\frac{1}{pq} = \frac{1}{pq} + 1 - \frac{1}{pq} = 1$

48. If $x = 2^{\sin^2 \theta}$, $y = 2^{\cos^2 \theta}$ for all real values of θ , then

(1) $x + y = 1$

(2) $x + y = 2$

(3) $x + y \leq 2\sqrt{2}$

(4) $x + y \geq 2\sqrt{2}$

Ans. (4)

Sol. $x = 2^{\sin^2 \theta}$, $y = 2^{\cos^2 \theta}$

As, A.M. \geq G.M.

So, $\frac{x + y}{2} \geq \sqrt{x \cdot y}$

or $\frac{x + y}{2} \geq \sqrt{2^{\sin^2 \theta} \cdot 2^{\cos^2 \theta}}$

$\frac{2^{\sin^2 \theta} + 2^{\cos^2 \theta}}{2} \geq \sqrt{2^1} \quad (\because \cos^2 \theta + \sin^2 \theta = 1)$

$2^{\sin^2 \theta} + 2^{\cos^2 \theta} \geq 2\sqrt{2}$

49. If, for all real values of θ ; $a = \sin^2\theta + \cos^4\theta$ then

(1) $a \geq \frac{3}{4}$

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

(3) $a = 1$

(4) $a = \frac{1}{2}$

Ans. (1)

Sol. $a = \sin^2\theta + \cos^4\theta = \sin^2\theta + (1 - \sin^2\theta)^2$

$$= \sin^4\theta - \sin^2\theta + 1 + \left(\frac{1}{2}\right)^2 - \left(\frac{1}{2}\right)^2$$

$$a = \left(\sin\theta - \frac{1}{2}\right)^2 + 1 - \frac{1}{4} = \left(\sin\theta - \frac{1}{2}\right)^2 + \frac{3}{4}$$

$$\therefore a \geq \frac{3}{4} \quad \left[\because \left(\sin\theta - \frac{1}{2}\right)_{\min}^2 = 0 \right]$$

50. If $\sin \alpha + \cos \alpha = a$ and $x = \sin^6\alpha + \cos^6\alpha$ then

(1) $x \leq 1$

(2) $x < 1$

(3) $x = 1$

(4) $x > 1$

Ans. (1)

Sol. $a = \sin \alpha + \cos \alpha$

$$a^2 = \sin^2\alpha + \cos^2\alpha + 2\sin\alpha \cdot \cos\alpha$$

$$\boxed{\sin \alpha \cdot \cos \alpha = \frac{a^2 - 1}{2}} \quad \dots (1)$$

Now, $x = \sin^6\alpha + \cos^6\alpha = \sin^6\alpha + (\cos^2\alpha)^3$

$$= \sin^6\alpha + (1 - \sin^2\alpha)^3$$

$$= \sin^6\alpha + 1 - \sin^6\alpha - 3\sin^2\alpha (1 - \sin^2\alpha)$$

$$= 1 - 3\sin^2\alpha \cdot \cos^2\alpha$$

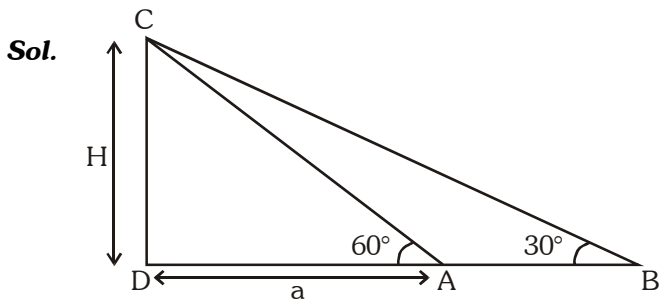
$$x = 1 - \frac{3(a^2 - 1)^2}{4} \quad (\text{From eq. (1)})$$

$$\therefore \boxed{x \leq 1}$$

51. The angle of elevation of the top of a 'H' m. high tower from two points A and B on the horizontal plane are 60° and 30° respectively. If the distance of A from the foot of the tower is 'a' m. then the distance of B from the foot of the tower will bem.

- (1) $\frac{H^2}{a}$ (2) $\frac{2H^2}{a}$ (3) $\frac{\sqrt{H}}{a}$ (4) None of these

Ans. (1)



In $\triangle ADC$

$$\Rightarrow \tan 60^\circ = \frac{H}{a}$$

$$\Rightarrow \sqrt{3} = \frac{H}{a} \dots\dots (1)$$

In $\triangle BDC$

$$\Rightarrow \tan 30^\circ = \frac{H}{BD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{H}{BD}$$

$$\Rightarrow BC = \sqrt{3}H = \frac{H}{a} \times H$$

$BD = \frac{H^2}{a}$

52. The co-ordinates of the vertices of a triangle are (3, 0), (0, 4) and (3, 4) respectively. The radius of the circle inscribed inside the triangle is.....units.

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

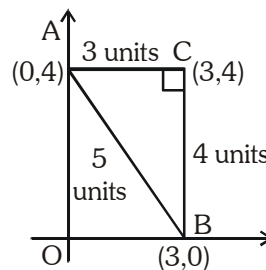
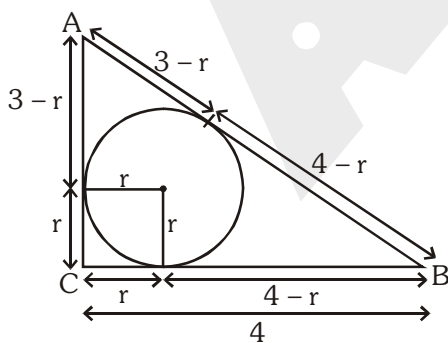
Ans. (4)

Sol. From figure,

$$AB = \sqrt{9 + 16} = 5 \text{ cm}, BC = \sqrt{9} = 3 \text{ cm}, AC = 4 \text{ cm}$$

As (3, 4, 5) is pythagorean triplet

$\Rightarrow \triangle ACB$ is a right \triangle



From figure

$$\begin{aligned} AB &= 5 \text{ cm} \\ \Rightarrow 3 - r + 4 - r &= 5 \\ \Rightarrow 7 - 5 &= 2r \\ \Rightarrow r &= \frac{2}{2} \Rightarrow r = 1 \text{ cm} \end{aligned}$$

- 53.** In a $\triangle ABC$, $\angle C = 90^\circ$. On the sides CA and CB two points P and Q are taken such that they divide CA and CB in the ratio 2 : 1 respectively. Then, $(Aa^2 + BP^2)$:

$AB^2 = \dots\dots$

- (1) $\frac{7}{9}$ (2) $\frac{4}{9}$ (3) $\frac{13}{9}$ (4) $\frac{11}{9}$

Ans. (*3) misprint in question

Sol. Note : As solution is given based on the assumption $Aa^2 = AQ^2$.

Let $PC = 2x$ and $AP = x$
and $QC = 2y$, $BQ = y$

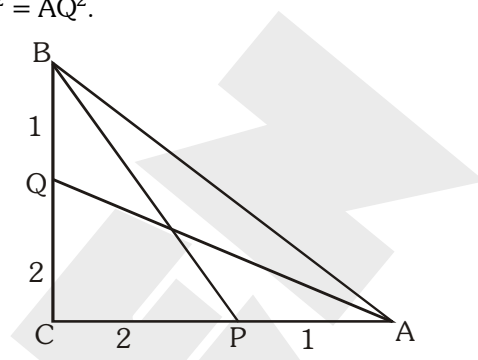
In $\triangle AQC$

$$\begin{aligned} AQ^2 &= (3x)^2 + (2y)^2 \\ &= 9x^2 + 4y^2 \quad \dots (1) \end{aligned}$$

In $\triangle BCP$

$$\begin{aligned} BP^2 &= (3y)^2 + (2x)^2 \\ &= 9y^2 + 4x^2 \quad \dots (2) \end{aligned}$$

$$\text{Now } \frac{AQ^2 + BP^2}{AB^2} = \frac{9x^2 + 4y^2 + 9y^2 + 4x^2}{(3x)^2 + (3y)^2} = \frac{13(x^2 + y^2)}{9(x^2 + y^2)} = \frac{13}{9}$$



- 54.** In $\triangle ABC$, $\angle C = 90^\circ$, D is a point on CA from which a perpendicular drawn to AB meets it at E. If $\angle EDA = \angle ABC$, $BC = a$ cm, $AD = x$ cm, $AE = y$ cm, $BE = z$ cm, then $DE = \dots\dots$ cm.

- (1) $\frac{ay}{z+x}$ (2) $\frac{az}{x+y}$ (3) $\frac{ax}{y+z}$ (4) None of these

Ans. (3)

Sol. In $\triangle EDA$ & $\triangle CBD$

$$\angle E = \angle C = 90^\circ$$

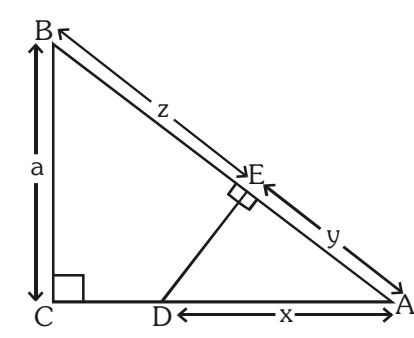
Also $\angle DAE = \angle CAB$ (common angle)

By AA criteria, $\triangle DEA \sim \triangle BCA$

$$\Rightarrow \frac{DE}{BC} = \frac{DA}{BA} = \frac{EA}{CA}$$

$$\Rightarrow \frac{DE}{a} = \frac{x}{y+z} = \frac{y}{AC}$$

$$\Rightarrow DE = \frac{ax}{y+z}$$



55. Two circles of radii 9 cm and 25 cm touch each other externally. The length of a direct common tangent is.....cm.

- (1) 15 (2) 30 (3) $\sqrt{706}$ (4) $\sqrt{544}$

Ans. (2)

Sol. In $\triangle ABC$,

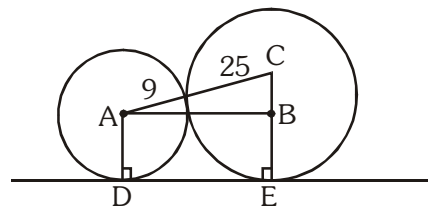
$$BC = 25 - 9 = 16 \text{ cm}$$

$$AC = 9 + 25 = 34 \text{ cm}$$

$$AB^2 + BC^2 = AC^2$$

$$AB^2 = (34)^2 - (16)^2 = 900$$

$$AB = \text{Direct common tangent (DE)} = \sqrt{900} = 30 \text{ cm}$$



56. ABCD is a rectangle. Taking AD as diameter a semi-circle is drawn which cuts the diagonal DB at E. If AB = 12 cm. and AD = 9 cm. then BE =.....cm.

- (1) 9 (2) 9.6 (3) 10.2 (4) 10.6

Ans. (2)

Sol. By pythagoras theorem

$$\Rightarrow BD = \sqrt{9^2 + 12^2}$$

$$\Rightarrow BD = 15 \text{ cm}$$

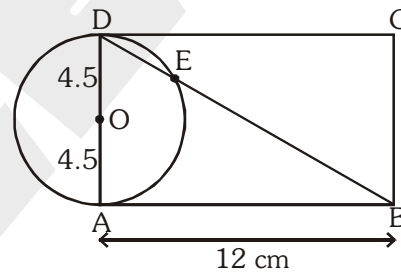
$$\text{Let, } BE = x \text{ cm}$$

then apply tangent secant theorem

$$\Rightarrow BE \times BD = (BA)^2$$

$$\Rightarrow x \times 15 = (12)^2$$

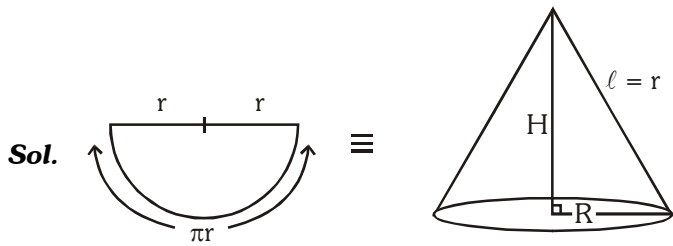
$$\Rightarrow x = \frac{144}{15} = 9.6 \text{ cm}$$



57. A semi-circular piece of paper of radius r cm, is folded to form a cone. The volume of the cone thus formed is.....cm³.

- (1) $\frac{\pi r^3}{\sqrt{3}}$ (2) $\frac{\pi r^3}{8\sqrt{3}}$ (3) $\frac{\pi r^3}{2\sqrt{3}}$ (4) $\frac{\pi r^3}{4\sqrt{3}}$

Ans. (2)



By folding, we have

$$\Rightarrow 2\pi R = \pi r \Rightarrow R = \frac{r}{2}$$

Also, $H = \sqrt{r^2 - R^2}$

$$H = \sqrt{r^2 - \left(\frac{r}{2}\right)^2} = \frac{\sqrt{3}r}{2}$$

$$\text{Volume} = \frac{1}{3}\pi R^2 H = \frac{1}{3}\pi \left(\frac{r}{2}\right)^2 \left(\frac{\sqrt{3}r}{2}\right) = \frac{\pi r^3}{8\sqrt{3}}$$

- 58.** A variable x takes the values x_1, x_2, \dots, x_n . Given $\sum(x_i - 2) = 110$ and $\sum(x_i - 5) = 20$, $i = 1, 2, \dots, n$, then $n = \dots$
- (1) 30 (2) 80 (3) 85 (4) 90

Ans. (1)

Sol. $\sum(x_i - 2) = 110$ & $\sum(x_i - 5) = 20$

Then,
$$\begin{cases} \sum x_i - 2n = 110 & \dots (1) \\ \sum x_i - 5n = 20 & \dots (2) \end{cases}$$

Subtract
$$\frac{\sum x_i - 2n = 110}{\sum x_i - 5n = 20} \quad \underline{\hspace{1.5cm}}$$

$$3n = 90$$

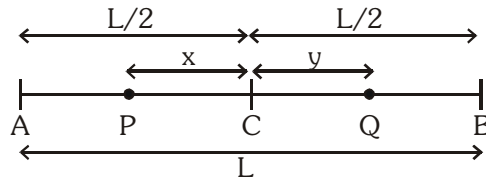
$\Rightarrow n = 30$

- 59.** C is the mid-point of the line segment AB of length L cm. Two points P and Q are taken randomly on the line segments CA and CB. Then, the probability for $PQ < \frac{1}{2}$ is

- (1) $\frac{1}{2}$ (2) $\frac{1}{4}$ (3) $\frac{1}{8}$ (4) None of these

Ans. (Bonus)

Sol. Note : Solution can be find if $PQ < \frac{L}{2}$



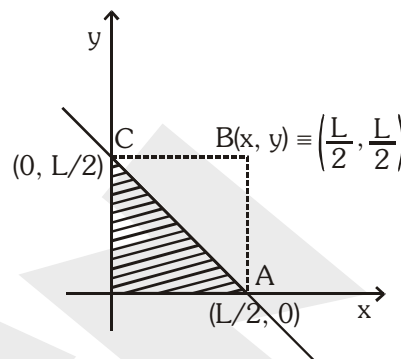
Taking P, Q point on line \overline{AC} and \overline{CB} respectively.

Then, $0 \leq x < \frac{L}{2}$ (1)

$0 \leq y < \frac{L}{2}$ (2)

Also, we have $PQ < \frac{L}{2}$

$\Rightarrow x + y < \frac{L}{2}$ (3)



Plotting the inequalities on cartesian plane.

So, we have

(i) Total area range in which point (x, y) can present = Ar. of square OABC

(ii) Favourable area for $(x + y) < \frac{L}{2}$ = Ar. of ΔAOC

So, probability $\left(PQ < \frac{L}{2}\right) = \frac{\text{Favourable area}}{\text{Total area}} = \frac{\text{ar.}(\Delta AOC)}{\text{ar.}(\square OABC)} = \frac{1}{2}$

60. If a, b, c, d denote the sides of a quadrilateral ABCD then, $\frac{a}{b+c+d} + \frac{b}{c+d+a} + \frac{c}{a+b+d} + \frac{d}{a+b+c}$ is

- (1) < 1 (2) ≥ 1 (3) > 1 (4) None of these

Ans. (4)

Sol. $\left(\frac{a}{b+c+d}\right) + \left(\frac{b}{a+c+d}\right) + \left(\frac{c}{a+b+d}\right) + \left(\frac{d}{a+b+c}\right)$
 $= \left(\frac{a}{b+c+d} + 1\right) + \left(\frac{b}{a+c+d} + 1\right) + \left(\frac{c}{a+b+d} + 1\right) + \left(\frac{d}{a+b+c} + 1\right) - 4$
 $= \underbrace{(a+b+c+d)}_{(\alpha)} \underbrace{\left[\frac{1}{b+c+d} + \frac{1}{a+c+d} + \frac{1}{a+b+d} + \frac{1}{a+b+c}\right]}_{(\beta)} - 4$

Then we have to find $\alpha\beta - 4$

$$\begin{aligned} \text{Now, } \beta &= \left(\frac{1}{b+c+d}\right) + \left(\frac{1}{a+c+d}\right) + \left(\frac{1}{a+b+d}\right) + \left(\frac{1}{a+b+c}\right) \\ &\geq 4 \cdot \sqrt[4]{\frac{1}{(b+c+d)(a+c+d)(a+b+d)(a+b+c)}} \quad [\because \text{AM} \geq \text{GM}] \dots \text{eq. (1)} \end{aligned}$$

Also, we have

$$\begin{aligned} 3\alpha &= 3[a+b+c+d] = [(a+b+c) + (b+c+d) + (c+d+a) + (d+a+b)] \geq \\ &4 \cdot \sqrt[4]{(a+b+c)(b+c+d)(c+d+a)(d+a+b)} \quad [\text{AM} \geq \text{GM}] \end{aligned}$$

$$\alpha = (a+b+c+d) \geq \frac{4}{3} \sqrt[4]{(a+b+c)(b+c+d)(c+d+a)(d+a+b)} \quad \dots \text{eq. (2)}$$

Then multiply equation (1) & (2)

$$\Rightarrow \alpha\beta = (a+b+c+d) \left[\frac{1}{a+c+d} + \frac{1}{a+b+d} + \frac{1}{a+c+d} + \frac{1}{a+b+c} \right] \geq 4 \times \frac{4}{3}$$

$$\Rightarrow \alpha\beta \geq \frac{16}{3}$$

$$\Rightarrow \text{Then, } \alpha\beta - 4 \geq \left(\frac{16}{3} - 4 \right)$$

$$\Rightarrow \alpha\beta - 4 \geq \frac{4}{3}$$

History

61. After the defeat of Napoleon where did the Victor Powers assemble in 1815 ?

- (1) Vienna (2) London (3) Paris (4) Rome

Ans. (1)

Sol. After defeat of Napoleon in the Battle of Waterloo in the 1815 victorious powers assemble in Vienna.

62. Which dynasty succeeded the Bourbon dynasty after the 1830 revolution ?

- (1) Habsburg (2) Orleans (3) Tsardom (4) None of these

Ans. (2)

Sol. Orleans Dynasty succeeded the Bourbon Dynasty in France after the 1830 Revolution.

63. Charles Albert was the King of which country ?

- (1) Naples (2) Parma (3) Modena (4) Sardinia

Ans. (4)

Sol. Charles Albert was the king of Sardinia.

64. What was Zollverein ?

- (1) Intellectual's Union (2) Clergy's Union
(3) Revolutionaries Union (4) Trader's Union

Ans. (4)

Sol. Zollverein was the name Trader's Union or Custom Union.

65. When was Karl Marx born ?

- (1) 1810 (2) 1818 (3) 1825 (4) 1830

Ans. (2)

Sol. Karl Marx was born in 1818.

66. Who was the author of "War and Peace"?

- (1) Tolstoy (2) Karl Marx (3) Lenin (4) St. Simon

Ans. (1)

Sol. Leo Tolstoy was the author of "War and Peace".

67. Who built the Angkorwat Temple ?

- (1) Jayavarman (2) Suryavarman II (3) Mahendrarvarman (4) Rudrarvarman

Ans. (2)

Sol. Suryavarman II built the Angkorwat Temple.

68. In 1878 which Viceroy passed the famous "Vernacular Press Act" ?

- (1) Lord Ripon (2) Lord Lytton (3) Lord Curzon (4) Lord Chelmsford

Ans. (2)

Sol. In 1878 Viceroy Lord Lytton passed the famous "Vernacular Press Act".

69. Who established the Ramakrishna Mission ?

- (1) Ramkrishna Paramhans (2) Ishwar Chandra Vidyasagar
(3) Swami Vivekananda (4) Devendra Nath Thakur

Ans. (3)

Sol. Swami Vivekanand established the Ramakrishna Mission.

70. After which incident Rabindra Nath Tagore surrendered the title "Knight" ?

- (1) Rowlatt Act (2) Khilafat Movement
(3) Jallianwala Bagh massacre (4) Coming of Simon Commission

Ans. (3)

Sol. After Jallianwala Bagh Incident Rabindra Nath Tagore surrendered the title "Knight".

71. Who invented the "Safety Lamp" ?

- (1) Humphrey Dury (2) Richard Arkwright (3) James Hargreaves (4) Edmund Cartwright

Ans. (1)

Sol. Humphrey Davy invented the Safety Lamp.

72. Who published the newspaper "Som Prakash" ?

- (1) Ishwar Chandra Vidyasagar (2) Bal Gangadhar Tilak
(3) Ram Mohan Roy (4) M.G.Ranade

Ans. (1)

Sol. Ishwar Chandra Vidyasagar published the newspaper "Som Prakash".

Geography

73. Bharatpur Bird sanctuary is situated in

- (1) Gujarat (2) Rajasthan (3) Assam (4) Bihar

Ans. (2)

Sol. Bharatpur Bird Sanctuary is situated in the state of Rajasthan.

74. The highest Literacy Rate in India is in.....?

- (1) West Bengal (2) Maharashtra (3) Kerala (4) Punjab

Ans. (3)

Sol. Kerala has the highest Literacy Rate in India.

75. Where is ropeway in Bihar ?

- (1) Bihar Sharif (2) Rajgir (3) Gaya (4) Munger

Ans. (2)

Sol. Ropeway in Bihar is present at Rajgir.

76. Select the correct statements -

- (a) Koshi river is sorrow of Bihar.
(b) Parrot is the national bird of India.
(c) Maruti Industry is situated in Delhi.
(d) Varanasi is situated on the bank of river Ganga.

- (1) a and d (2) b and c (3) b, c and d (4) a, c and d

Ans. (1)

Sol. Only the statement a & d are correct among the given four statements.

77. Which one is correct ?

- (1) Jammu and Kashmir - Jojila (2) Himachal Pradesh - Thagla
(3) Uttarakhand - Nathula (4) Sikkim - Shipkila

Ans. (1)

Sol. Jojila Pass is situated in Jammu and Kashmir.

78. Which name is correct for Patna Airport ?

- (1) Jai Prakash Narayan International Airport (2) Patna Airport
(3) Rajendra Prasad International Airport (4) Bihar Airport

Ans. (1)

Sol. The correct name for Patna airport is Jai Prakash Narayan International Airport.

79. The main problems of industrial backwardness of Bihar is -

- (1) Lack of raw material (2) Lack of capital/money
(3) Lack of electricity (4) All of the above

Ans. (4)

Sol. The main reasons responsible of Bihar's industrial backwardness are- lack of raw material, lack of capital & lack of electricity

80. Which statement is not correct ?

- (a) Medha Patekar is related with Narmada Bachao Andolan.
(b) New alluvial soil is termed as Bangar.
(c) Mangrove Forest found in the coastal area of India.
(d) Plantation agriculture is one of the type of commercial farming.

- (1) a (2) b (3) b, c and d (4) c and d

Ans. (2)

Sol. New alluvial soil is termed as Khadar, so out of given four statements only statement b is incorrect.

81. Which of the following cities are located on the Western Coast of India ?

- (1) Puri, Chennai, Vishakhapattanam
(2) Hyderabad, Nagpur, Bengaluru
(3) Kozhikode (Calicut), Goa, Mumbai
(4) Amrawati, Puna, Pudduchery (Pondicherry)

Ans. (3)

Sol. Kozhikode (Calicut), Goa, Mumbai are cities located on the Western Coast of India.

82. Select the correct statements -

- (a) Mount K2 is the highest peak of India
(b) Sunderban is in West Bengal
(c) Nuclear disaster is very dangerous for the world.
(d) Cactus plants found in evergreen forest.

- (1) a and b (2) a and c (3) a, b and c (4) a, b and d

Ans. (3)

Sol. Only the statement a, b & c are correct among the given four statements.

83. The Golden Quadrilateral Super highway connected with the following -

- (1) Jammu, Bikaner, Jodhpur, Rajkote (2) Porbandar, Bikaner, Amritsar, Srinagar
(3) Delhi, Mumbai, Chennai, Kolkata (4) Sikkim, Siliguri, Jorhat, Agartalla

Ans. (3)

Sol. The Golden Quadrilateral Super Highway connects Delhi, Mumbai, Chennai & Kolkata.

84. Select the correct statements -

- (a) Muscovite is known as Bengal Ruby.
- (b) Gold is metallic mineral.
- (c) Kahalgaon Super Thermal Power is in Uttar Pradesh.
- (d) Anthracite is one type of iron.

(1) a (2) a and b (3) a, b and c (4) a, b and d

Ans. (2)

Sol. Only the statement a & b are correct among the given four statements.

Civics

85. Which one of the following term is not included in the preamble to the Indian Constitution ?

- (1) Republic (2) Justice (3) Monarchy (4) Equality

Ans. (3)

Sol. The term Monarchy is not included in the Preamble to the Indian Constitution.

86. Which of the following does not lead to the spread of democracy ?

- (1) Struggle by people
- (2) Invasion by Foreign Government
- (3) End of Colonialism
- (4) People's desire for freedom

Ans. (2)

Sol. Invasion by foreign government does not lead to the spread of Democracy.

87. Which one of the following statement about the Indian President is true ?

- (1) He appoints Chief Minister in States.
- (2) He exercises real power.
- (3) He is elected directly by the people.
- (4) He is the formal head in the Country.

Ans. (4)

Sol. In India, President is the formal head of the country, the real powers are exercised by Prime Minister.

88. Which of the following institutions can amend the Constitution of India ?

- (1) The Parliament
- (2) The Cabinet
- (3) The Prime Minister
- (4) The President

Ans. (1)

Sol. The Parliament is the institution that can amend the Constitution of India.

89. Which of the following are the features of Federal Government ?

- (I) Unwritten Constitution
- (II) Division of Powers
- (III) Single Citizenship
- (IV) Independent Judiciary

(1) I and II (2) II and III (3) I and IV (4) II and IV

Ans. (4)

Sol. Division of powers and independent judiciary are the important features of Federal Government.

90. Dealing with social divisions which one of the following statement is not true about democracy ?

- (1) Democracy is the best way to accommodate social diversity.
- (2) Democracy always leads to disintegration of society.
- (3) In a democracy, it is possible for communities to voice their grievances in a peaceful manner.
- (4) Due to political competition in a democracy, social division get reflected in politics.

Ans. (2)

Sol. Option (2) is incorrect with respect to dealing with social divisions in a democratic country.

91. What do the civil servants do ?

- (1) They take policy decisions.
- (2) They implement minister's decision.
- (3) They settle the disputes.
- (4) None of these

Ans. (2)

Sol. In india, civil servants impliments minister's dication.

92. Which one of the following does not help in the formation of Public Opinion ?

- (1) Newspaper
- (2) Radio
- (3) Playground
- (4) Educational Institutional

Ans. (3)

Sol. Out of the given options playground will not help in the formation of Public Opinion.

Economics

93. At present which form of money increasingly used apart from paper money?

- (1) Commodity money
- (2) Metallic money
- (3) Plastic money
- (4) All of the above

Ans. (3)

Sol. At present plastic money is increasingly used apart from paper money.

94. Choose the correct combination :

Standardized Marks

- (i) ISI
- (ii) FPO
- (iii) Hallmark
- (iv) Agmark
- (1) i-a, ii-b, iii-c, iv-d
- (3) i-b, ii-c, iii-a, iv-d

Product

- (a) Jewellery
- (b) Electrical
- (c) Food
- (d) Agricultural
- (2) i-c, ii-d, iii-a, iv-b
- (4) i-d, ii-c, iii-b, iv-a

Ans. (3)

Sol. Only the combinations of option (3) matches correctly.

95. There are 1000 households in the village of Almora, of which the loan taken by 200 households are from the State Bank of India, another 200 households from their friends and relatives, 50 households from Indian Bank, 100 households from Regional Rural Bank, 150 households from businessmen, 100 households from village headmen and 200 households from cooperative societies. Which of the following statements is/are correct ?

- I. Formal sources of credit are lower than the others.
- II. Institutional sources of credit are higher than others.
- III. Non-institutional sources of credit are higher than others.
- IV. Informal sources of credit are higher than others.

- (1) Only I
- (2) Only II
- (3) I and II
- (4) III and IV

Ans. (2)

Sol. According to the data given in the question, Institutional Sources of credit are relatively higher than others.

96. Which of the following statements about Sustainable Development is/are correct ?

- I. The word 'Sustainable Development' came into existence in the year 1980.
- II. Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- III. Brundtland Commission is related to Sustainable Development.

- (1) I and II (2) I and III (3) Only II (4) I, II and III

Ans. (4)

Sol. All the given statements are correct with respect to Sustainable Development.

97. Which of the following statements is/are correct about the NITI Aayog ?

- I. NITI Aayog was established on 1 January 2015.
- II. The Prime Minister of India is the ex officio Chairperson of the NITI Aayog.
- III. NITI Aayog replaced the Planning Commission of India in 2014.

- (1) I and II (2) II and III (3) Only I (4) I, II and III

Ans. (1)

Sol. Only the statement I & II are correct about the NITI Aayog.

98. Mixed Economy means an economy where there is

- (1) Existence of capitalism
- (2) Privatization, liberalization and globalization
- (3) Existence of both public and private sectors.
- (4) Growing crops along with rearing animals

Ans. (3)

Sol. Mixed economy means an economy where there is an existence of both public and private sectors.

99. Which of the following is not a function of the commercial bank in an economy ?

- (1) Accepting Deposits
- (2) Providing Loans
- (3) Locker Facilities
- (4) Acting as a Banker's Bank

Ans. (4)

Sol. Acting as a Banker's Bank is not the valid function of the commercial bank in an economy.

100. If GDP for a country X is \$130 million in 2020 and its population is 20,000, GDP per capita is -

- (1) 6500 (2) 130 (3) 0.0065 (4) 650

Ans. (1)

Sol. If GDP for a country X is \$130 million and its population is 20000 then its GDP per capita will be \$6500.