Date: 05/11/2017

Max. Marks: 100   **SOLUTIONS**   **Time allowed: 90 mins**

1. If $\cos\theta + \sqrt{3}\sin\theta = \sqrt{2}$ and $0° < \theta < 180°$, then what is θ equal to ?

(A) 15° or 105°   (B) 35° or 115°   (C) 25° or 110°   (D) 40° or 125°

Ans. (A)

Sol. $\cos\theta + \sqrt{3}\sin\theta = \sqrt{2}$

$\dfrac{1}{2}\cos\theta + \dfrac{\sqrt{3}}{2}\sin\theta = \dfrac{1}{\sqrt{2}}$

$\sin 30°\cos\theta + \cos 30°\sin\theta = \dfrac{1}{\sqrt{2}}$

$\sin(30° + \theta) = \sin 45°$ or $\sin(30° + \theta) = \sin 135°$

$\theta = 15°$ $\theta = 105°$

2. If $f(x) = \sin x + \cos x$, then what is maximum value of $f(x)$?

(A) 1   (B) $\sqrt{2}$ (C) $\sqrt{3}$ (D) 2

Ans. (B)

Sol. $f(x) = \sin x + \cos x$

It will be maximum when $x = 45°$

$f(x) = \dfrac{1}{\sqrt{2}} + \dfrac{1}{\sqrt{2}} = \dfrac{2}{\sqrt{2}} = \sqrt{2}$

3. How much is the mean of the measures of all the interior angles of a pentagon ?

(A) 95°   (B) 98°   (C) 108°   (D) 120°

Ans. (C)

Sol. Mean = $\dfrac{\text{sum of all interior angles of pentagon}}{5}$ = $\dfrac{(3 \times 180°)}{5} = \dfrac{540°}{5}$ = 180°

4. If A (–1,1) and B (3, –1) are the end points of one side $\overline{AB}$ of square ABCD, then how many units will be the length of one of its diagonals?

(A) 10   (B) $\sqrt{10}$ (C) 40   (D) $\sqrt{40}$

Ans. (D)

Sol. Length of side = $\sqrt{(3-(-1))^2 + (-1-1)^2} = \sqrt{4^2 + 2^2} = \sqrt{16+4} = \sqrt{20}$

length of diagonal = $a\sqrt{2} = \sqrt{20 \times 2} = \sqrt{40}$

5. What is the ratio in which the x-axis divides the line segment joining the points (3, –4) and (2, 6) internally ?

(A) 2 : 3   (B) 3 : 2   (C) 4 : 3   (D) 3 : 4

Ans. (A)

Sol. Let x axis divides (3, –4) and (2, 6) in the ratio k : 1

then its ordinate = 0

$$\frac{6k-4}{k+1} = 0$$

$$6k - 4 = 0$$

$$k = \frac{4}{6} = \frac{2}{3}$$

6. The ratio of the height of a pillar and its shadow cast on the ground during a day is $1 : \sqrt{3}$. What is the elevation of the sun at that time?
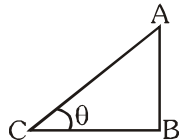
(A) 15°   (B) 30°   (C) 45°   (D) 60°

Ans. (B)

Sol. $\tan\theta = \dfrac{1}{\sqrt{3}}$

$\tan \theta = \tan 30°$

$\Rightarrow \theta = 30°$

7. If the product of five consecutive integers is equal to one of them, then which greatest possible integer is likely to be contained in them?

(A) 1   (B) 4   (C) 6   (D) 10

Ans. (B)

Sol. It is only possible when one of them is 0

     $\Rightarrow$ 0, 1, 2, 3, 4

8. If $2^{x+3} = 32$, then what is the value of 3^{6-x} ?

(A) 7   (B) 9   (C) 27   (D) 81

Ans. (D)

Sol. $2^{x+3} = 2^5$

$x + 3 = 5$

$\therefore x = 2$

So, $3^{6-2} = 3^4 = 81$

9. How many integers occur between 10 and 200 which are exactly divisible by 7 ?

(A) 27   (B) 28   (C) 23   (D) 21

Ans. (A)

Sol. Number between 10 and 200 that are divisible by 7 are 14, 21, 28 ... 196.

Here a = 14, d = 7

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

$196 = 14 + (n - 1) 7$

$182 = 7n - 7 \Rightarrow 7n = 189$

$$n = \frac{189}{7} = 27$$

10. If α and β are the roots of the equation $2x^2 - 7x - 3 = 0$, then what is the value of $(\alpha + 3)(\beta + 3)$?

(A) 10   (B) 12   (C) 15   (D) 18

Ans. (D)

Sol. $(\alpha + 3)(\beta + 3)$

$= \alpha\beta + 3(\alpha + \beta) + 9 = \dfrac{-3}{2} + \dfrac{3 \times 7}{2} + 9$

$[\because \alpha + \beta = \dfrac{-b}{a} = \dfrac{7}{2}$ and $\alpha\beta = \dfrac{c}{a} = \dfrac{-3}{2}]$

$= \dfrac{-3 + 21 + 18}{2} = \dfrac{36}{2} = 18$

11. What is the H.C.F. of $x^3 - x^2 - 4x - 6$ and $x^2 - 2x - 3$?

(A) $x + 1$ (B) $x - 1$ (C) $x + 3$ (D) $x - 3$

Ans. (D)

Sol. $x^3 - x^2 - 4x - 6 = (x - 3)(x^2 + 2x + 2)$

$x^2 - 2x - 3 = (x - 3)(x + 1)$

H.C.F. $= (x - 3)$

12. What value will be obtained on simplifying $\dfrac{1}{\sqrt{6} + \sqrt{5}} + \dfrac{1}{\sqrt{9} + \sqrt{8}} + \dfrac{1}{\sqrt{7} + \sqrt{6}} + \dfrac{1}{\sqrt{8} + \sqrt{7}} + \sqrt{5}$?

(A) $3 + \sqrt{5}$ (B) $3 - \sqrt{5}$ (C) 3   (D) $\sqrt{5}$

Ans. (C)

Sol. $\dfrac{1}{\sqrt{6} + \sqrt{5}} \times \dfrac{\sqrt{6} - \sqrt{5}}{\sqrt{6} - \sqrt{5}} = \sqrt{6} - \sqrt{5}$

Similarly, on rationlisation of all terms we get $\sqrt{6} - \sqrt{5} + \sqrt{9} - \sqrt{8} + \sqrt{7} - \sqrt{6} + \sqrt{8} - \sqrt{7} + \sqrt{5} = 3$

13. If 'a' and 'b' are real numbers, for which of the following conditions $a^2 + b^2$ reduces to zero ?

(A) $a > 0, b > 0$ (B) $a = 0, b = 0$ (C) $a < 0, b > 0$ (D) $a > 0, b < 0$

Ans. (B)

Sol. $a^2 + b^2$ will be zero only if $a = 0, b = 0$

14. What should be subtracted from each one of 21, 38, 55 and 106, so that the results of subtractions will be proportional?

(A) 4   (B) $4\dfrac{1}{2}$ (C) 6   (D) $6\dfrac{1}{2}$
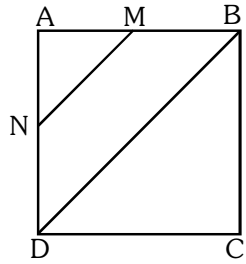
Ans. (A)

Sol. $\dfrac{21 - x}{38 - x} = \dfrac{55 - x}{106 - x}$

$\Rightarrow 106 \times 21 - 106 x - 21x + x^2 = 38 \times 55 - 55x - 38x + x^2$

$\Rightarrow 34 x = 136$

$\Rightarrow x = 4$

15. In the given figure, ABCD is a square in which M and N are the mid-points of the sides $\overline{AB}$ and $\overline{AD}$ respectively. How many square units is the area of MNDB quadrilateral, if each side of the square is 2 units long?

(A) 1.0   (B) 1.5   (C) 2.0   (D) 2.5

Ans. (B)

Sol. $ar(\Delta AMN) = \dfrac{1}{4} ar(\Delta ABD)$ (By similarity)

$ar(\Delta ABD) = \dfrac{1}{2} ar(ABCD) = \dfrac{1}{2} \times 2 \times 2$

$ar (ABD) = 2$

$ar(\Delta AMN) = \dfrac{2}{4} = \dfrac{1}{2}$

$ar(BMND) = ar(\Delta ABD) - ar(\Delta AMN)$

$= 2 - \dfrac{1}{2} = \dfrac{3}{2}$

$ar(BMND) = 1.5$

16. The sum of the lengths of all the edges of a cube is 6 cm. Then what is the volume of the cube in cubic centimetre?

(A) $\dfrac{1}{36}$ (B) $\dfrac{1}{12}$ (C) $\dfrac{1}{8}$ (D) $\dfrac{1}{4}$

Ans. (C)

Sol. Let edge of the cube is a

Given 12a = 6

$\Rightarrow a = \dfrac{1}{2}$

Volume $= a^3 = \dfrac{1}{8}$

17. If each of the length and breadth of a rectangle is increased by 100%, then what will be the percentage increase in its area?
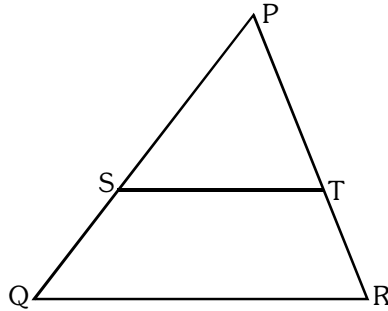
(A) 100   (B) 200   (C) 300   (D) 400

Ans. (C)

Sol. Let length $= \ell$, breadth = b

Then new length and breadth will be 2ℓ & 2b.

Percentage increase in area $= \dfrac{4\ell b - \ell b}{\ell b} \times 100 = 300\%$

18. In the given figure, $\overline{ST} \| \overline{PQ}$ and $\dfrac{PS}{PQ} = \dfrac{3}{5}$. If the area of $\triangle PST$ is 45 sq cm, then what is the area of the trapezium STRQ in sq cm unit?
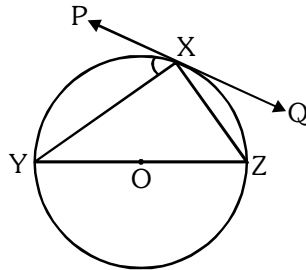

(A) 60   (B) 80   (C) 100   (D) 125

Ans. (B)

Sol. $\dfrac{ar(\triangle PST)}{ar(\triangle PQR)} = \left(\dfrac{PS}{PQ}\right)^2$

$ar(\triangle PQR) = 45 \times \dfrac{25}{9} = 125$

$ar(STRQ) = 125 - 45 = 80$ sq cm

19. In the given figure, O is the centre of the circle XYZ and $\overline{PQ}$ is the tangent at X. If m$\angle$XYZ = 30°, what is the measure of $\angle$PXY?

(A) 30°   (B) 45°   (C) 60°   (D) 90°
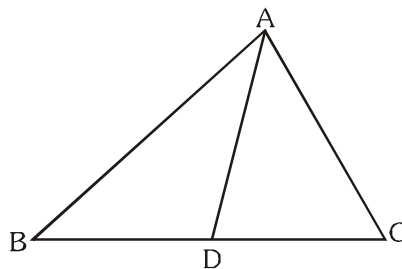
Ans. (C)

Sol. $\angle$PXY = $\angle$XZY ($\because$ Angle in alternate segment theorem)

$\angle$XZY = 180 − $\angle$YXZ − $\angle$XYZ = 180 − 90 − 30

$\angle$PXY = 60°

20. In the given figure, $\overline{AD}$ is a median of $\triangle ABC$. If AD = 4 cm, BD = 3 cm and AC = 5 cm, then what is the area of $\triangle ABC$ in sq cm ?
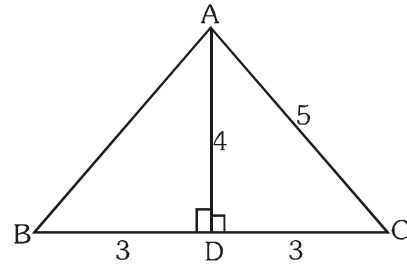

(A) 9   (B) 12   (C) 15   (D) 16

Ans. (B)

Sol. $AD^2 + CD^2 = AC^2$

$4^2 + CD^2 = 5^2$

$CD = 3$ cm

Ar.$(\triangle ABC) = \dfrac{1}{2} \times 6 \times 4 = 12$ cm^2

21. If the density of water 4℃ is 1 gm/cc in C.G.S. units; how much would it be in M.K.S. units?

(A) 1 kg/cc   (B) 1 kg/m^3 (C) 100 kg/m^3 (D) 1000 kg/m^3

Ans. (D)

Sol. $\rho_{water} = \dfrac{1g}{cm^3}$

$\dfrac{1g}{cm^3} = \dfrac{1/1000 kg}{1/10^6 \ m^3}$

$\dfrac{1g}{cm^3} = 1000$ kg/m^3

22. A car travels with a constant speed of 30 km/hr for 15 min. and then quickly speed up to 50 km/hr to be maintained for 30 min. Then its average speeed in km/hr would be

(A) 43.33 km/hr   (B) 40 km/hr   (C) 45 km/hr   (D) 50 km/hr

Ans. (A)

Sol. $t_1 = 15$ min $= \dfrac{1}{4}$ h, $t_2 = 30$ min $= \dfrac{1}{2}$ h

$V_{avg} = \dfrac{total\ distance}{total\ time}$ $V_{avg} = \dfrac{s_1 + s_2}{t_1 + t_2}$

$s_1 = v_1 \times t_1 = 30 \times \dfrac{15}{60} = \dfrac{15}{2}$ m

$s_2 = v_2 \times t_2 = 50 \times \dfrac{15}{2} = \dfrac{50}{2}$ m

$v_{avg} = \dfrac{\dfrac{15}{2} + \dfrac{50}{2}}{\dfrac{1}{4} + \dfrac{1}{2}} = \dfrac{\dfrac{15+50}{2}}{\dfrac{2+4}{8}} = \dfrac{65}{2} \times \dfrac{8}{6}$

$v_{avg} = \dfrac{260}{6} = 43.33$ km/h

23. A bullet fired into a wall loses half of its initial speed after entering through 1cm into the wall. How far further can it move before coming to rest?

(A) 1/2 cm   (B) 1/3 cm   (C) 2/3 cm   (D) 1 cm

Ans. (B)

Sol. Intial velocity = u; Final velocity after travelling 1 cm = u/2 ; distance = 1 cm

$v^2 = u^2 + 2as$

$\dfrac{u^2}{2} = u^2 + 2a \times 1$ $\qquad\qquad$ $\dfrac{-3}{4}u^2 = 2a$

$a = \dfrac{-3}{8}u^2$

Total distance travelled before it gets stop

$v^2 = u^2 + 2as$

$0 = u^2 + 2\left(\dfrac{-3}{8}u^2\right) \times x$ $\qquad$ $0 = u^2 - \dfrac{3}{4}u^2\,x$

$\dfrac{3}{4}u^2\,x = u^2$ $\qquad\qquad$ $x = \dfrac{4}{3}$

Remaining distance = $\dfrac{4}{3} - 1 = \dfrac{1}{3}$ cm

24. Train A of length 120 m moving with a velocity 20 m/sec is about to cross another train B of length 130 m, moving towards it from opposite direction with a speed of 30 m/sec. Then find the time duration during which the trains would cross each other.

(A) 36 sec. $\qquad\qquad$ (B) 5 sec. $\qquad\qquad$ (C) 38 sec. $\qquad\qquad$ (D) 40 sec.

Ans. (B)

Sol. Total distance = 120 + 130 = 250 m

Relative velocity v_r = 20 + 30 = 50 m/s.

$t = \dfrac{s}{v} = \dfrac{250}{50}$

t = 5 sec.

25. A pump draws 1000 kg of water per minute from a well 12m deep. Then the power of the pump in H.P. unit would be very nearly equal to _____ (given g = 10 m/s^2)

(A) 2.0 $\qquad\qquad$ (B) 2.3 $\qquad\qquad$ (C) 2.63 $\qquad\qquad$ (D) 2.5

Ans. (C)

Sol. $P = \dfrac{mgh}{t}$

$P = \dfrac{1000 \times 10 \times 12}{60}$

P = 2000 W

$P = \dfrac{2000}{746}$ H.P.

P = 2.63 HP

26. A sound wave of frequency 1 KHz takes 10/3 seconds to travel a distance of 1 km. Then its wavelength would be _____

(A) 20 cm   (B) 200 cm   (C) 300 cm   (D) 30 cm

Ans. (D)

Sol. $f = 1000 \text{ Hz}$; $t = \dfrac{10}{3} \text{ sec}$; $s = 1000 \text{ m}$

$$v = \frac{s}{t} = \frac{1000}{\dfrac{10}{3}} = 300 \text{ m/s}$$

$v = f.\lambda$

$\lambda = \dfrac{v}{f}$

$\lambda = 0.3 \text{ m}$

$\lambda = 30 \text{ cm}$

27. A body when floats in water; 1/3 rd of its volume remains outside water. When it floats in another liquid, 3/4th of its volume remains outside the liquid. Then the density of the liquid is

(A) $\dfrac{9}{4}$ g/cc   (B) $\dfrac{8}{3}$ g/cc   (C) 4 g/cc   (D) $\dfrac{3}{8}$ g/cc

Ans. (B)

Sol. Buoyant force = Weight of the body

$\rho_w V_d g = \rho_s V_s g$

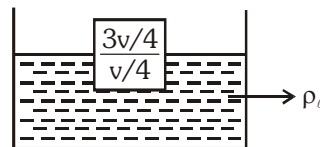$\rho_w \times \dfrac{2v}{3} \times g = \rho_s \times v \times g$

$\rho_s = \dfrac{2}{3}$ g/cc

Buoyant force = Weight of the body

$\rho_\ell V_\ell g = \rho_s V_s g$

$\rho_\ell \times \dfrac{v}{4} = \dfrac{2}{3} \times v$

$$\boxed{\rho_\ell = \frac{8}{3} \text{g/cc}}$$
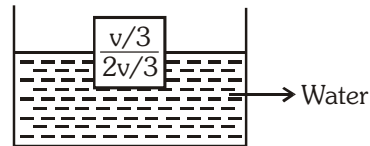
28. An object is placed on the 2F position of a convex lens. The magnification (m) produced by the lens is

(A) m > 1   (B) m < 1   (C) m = 1   (D) None of these

Ans. (C)

Sol. u = 2f

v = 2f

$m = \dfrac{v}{u} = \dfrac{2f}{2f}$

m = 1

29. A bi-convex lens is split vertically into two equal parts so that two plano-convex lenses are formed. If the focal length of the bi-convex lens be 'f', then the focal length of each of the plano-convex lenses would be

(A) f (B) f/2 (C) 2f (D) ∞

Ans. (C)

Sol. $\frac{1}{f'} + \frac{1}{f'} = \frac{1}{f}$

$\frac{2}{f'} = \frac{1}{f}$

f' = 2f

30. Which of the following statements is correct for a concave mirror?

(A) Always produces real image only (B) Always produces virtual image only

(C) Can produce real and virtual image (D) Can not produce real image at all

Ans. (C)

Sol. From ∞ to f image is real and from f to pole image formed will be virtual.

31. An electric current of 5 amperes is divided into three branches, along three branches, along three wires of same material with same cross-section but with their length in the proportion of 1 : 2 : 3. Then the current in the middle branch will be

(A) $\frac{30}{11}$ A (B) $\frac{10}{11}$ A (C) $\frac{15}{11}$ A (D) 2.5A

Ans. (C)

Sol.
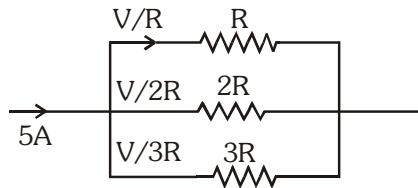
$\frac{V}{R} + \frac{V}{2R} + \frac{V}{3R} = 5$

$\frac{11V}{6R} = 5$

$I_{2R} = \frac{V}{2R} = \frac{15}{11}$ A

32. An 80 Watt lamp is connected to a 220 volt power supply. Its resistance is

(A) 1210 Ω (B) 600 Ω (C) 605 Ω (D) 484 Ω

Ans. (C)

Sol. P = 80 Watt
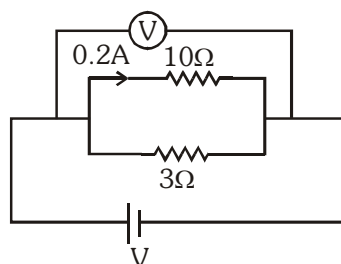
V = 220 Volt

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

$R = \frac{V^2}{P} = \frac{(220)^2}{80}$

R = 605Ω

33. Two resistances 10 Ω and 3 Ω are connected in parallel across a battery. If there is a current of 0.2 A in the 10 Ω resistor, the emf of the battery will be

(A) 2 volt   (B) 2.2 volt   (C) 1.8 volt   (D) 2.6 volt

Ans. (A)

Sol.

V = I.R.

V = 0.2 ×10

V = 2 volt

EMF is same is parallel combination.

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

(A) 7 grams nitrogen (g)   (B) 23 grams nitrous oxide (g)

(C) 2 grams Hydrogen (g)   (D) 16 grams oxygen (g)

Ans. (C)

Sol. Given mass of Hydrogen = 2 gm

Gram molecular mass of hydrogen = 2g

no. of mole = $\dfrac{\text{Given mass of hydrogen}}{\text{molecular mass of hydrogen}} = \dfrac{2}{2} = 1$

2g hydrogen contain NA no. of molecules.

35. Which of the following pair is isoelectronic?

(A) CO_2, NO_2 (B) NO_2, CO_2 (C) CO, CN^- (D) SO_2, CO_2

Ans. (C)

Sol. CO, CN^-

no. of e^- in CO = 6 + 8 = 14

no. of e^- in CN^- = 6 + 7 + 1 = 14

So CO, CN^- are iso electronic (having same electrons)

36. Which of the following is not an exothermic reaction?

(A) $CaCO_3 \longrightarrow CaO + CO_2$ (B) $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$

(C) $HCl + NaOH \longrightarrow NaCl + H_2O$ (D) $N_2 + 3H_2 \longrightarrow 2NH_3$

Ans. (A)

Sol. $CaCO_3 \longrightarrow CaO + CO_2$

Thermal decomposition of $CaCO_3$ is endothermic reaction.

37. Select the incorrect statement.

(A) C_3H_8 does not have any isomer.

(B) $HCOOCH_3$ and CH_3COOH are not same organic compounds.

(C) There is no organic compound with formula CH_2O.

(D) C_3H_4 has two π – bonds.

Ans. (C)

Sol. There is no organic compound with formula CH_2O.

It is false statements as HCHO having molecular formula CH_2O.

38. What is the correct order of pH of aqueous solution of the following salts?

(A) $NaCl = Na_2CO_3 = NH_4Cl$

(B) $NaCl < Na_2CO_3 < NH_4Cl$

(C) $NH_4Cl < Na_2CO_3 < NaCl$

(D) $NH_4Cl < NaCl < Na_2CO_3$

Ans. (B)

Sol. The correct order of pH of aqueous salt solution is

$NaCl < Na_2CO_3 < NH_4Cl$

39. Which of the following has oxygen atom in zero oxidation number?

(A) Hydrogen peroxide (B) Ozone (C) Water (D) Oxygen difluoride

Ans. (B)

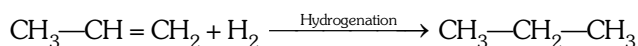**Sol.** $\underset{O_2}{\underline{O = O}} \rightarrow O$
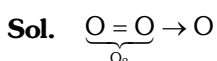
Oxygen have zero oxidation number (elementary form).

40. Which of the following shows addition reaction?

(A) C_2H_6 (B) C_3H_6 (C) CH_4 (D) C_3H_8

Ans. (B)

Sol. C_3H_6 shows hydrogenation (addition of hydrogen)

$CH_3—CH = CH_2 + H_2 \xrightarrow{\text{Hydrogenation}} CH_3—CH_2—CH_3$

41. In order to prepare hard water from pure water which of the following salt may be added?

(A) $CaCl_2$ (B) $MgCl_2$ (C) $MgSO_4$ (D) All of these

Ans. (D)

Sol. All of these

We know that hard water contain Ca^{+2}, Mg^{+2} ions.

42. Gases causing global warming are_____

(A) CO_2, CH_4, N_2, O_2

(B) CO_2, CH_4, water vapour

(C) CO_2, CH_4, N_2, O_2 and water vapour

(D) CO_2, CO, CH_4, N_2

Ans. (B)

Sol. CO_2, CH_4 and water vapour are responsible for global warming.

43. 'X' is a substance which is soluble in water and its aqueous solution turns red litmus blue and produces H_2 on reaction with zinc. It is prepared by electrolysis of NaCl (aq.). What is X?

(A) HNO_3 (B) $NaClO_3$ (C) NaOH (D) NH_4OH

Ans. (C)

Sol. X is NaOH

NaOH is soluble in water and gives OH^- in aqueous solution. So it turns red litmus blue.

$2NaOH \text{ (aq.)} + Zn(s) \longrightarrow Na_2ZnO_2 + H_2$
                     Sodium zincate

Preparation of NaOH

$NaCl(aq.) + 2H_2O(\ell) \longrightarrow H_2(g) + Cl_2(g) + 2NaOH \text{ (aq.)}$
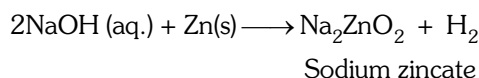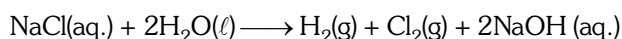
44. Place of gold in modern periodic table is_____.

(A) s-block (B) p-block (C) d-block (D) f-block

Ans. (C)

Sol. Gold belongs to d-block in modern periodic table.

45. Which of the following has the formula KO_2?

(A) Potassium suboxide

(B) Potassium peroxide

(C) Potassium superoxide

(D) Kalium oxide

Ans. (C)

Sol. Potassium superoxide. O_2^{-1} is known as super oxide anion.

$$K \quad O_2$$
$$+1 \quad -1$$
$$KO_2$$

46. IUPAC name of $CH_2 = CH \overset{CH_3}{\underset{Br}{\diagdown}}$ is

(A) 3–Bromo–3–methylprop–1–ene

(B) 3–Bromobut–3–ene

(C) 2–Bromobut–3–ene

(D) 2–Bromoprop–1–ene

Ans. (D)

Sol. $\overset{①}{CH_2} = \overset{②}{CH} \overset{\overset{③}{CH_3}}{\underset{Br}{\diagdown}}$

2–Bromoprop–1–ene

47. Which of the following organisms belongs to the kingdom Monera?

(A) Amoeba

(B) Paramecium

(C) Mycoplasma

(D) Diatom

Ans. (C)

Sol. Mycoplasma is a prokaryote which belongs to kingdom Monera.

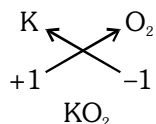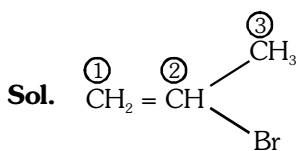**48.** What is the function of phloem parenchyma ?

(A) Growth

(B) Cell division

(C) Storage

(D) Transport of food materials

Ans. (C)

Sol. Phloem paranchyma is concerned with storage of food.

49. Which of the following increases water holding capacity of the soil?

(A) Bloom

(B) Clay

(C) Humus

(D) Sand

Ans. (C)

Sol. Humus increases the water holding capacity of the soil.

50. Which of the following is not necessary for light reaction in photosynthesis?

(A) Light

(B) Carbon dioxide

(C) Water

(D) Chlorophyll

Ans. (B)

Sol. CO_2 is not required for light reaction in photosynthesis.

51. In the absence of oxygen which product is formed from pyruvic acid in muscle cells?

(A) Ethanol

(B) Carbon dioxide and water

(C) Lactic acid

(D) Methyl alcohol

Ans. (C)

Sol. During anaerobic respiration in muscle cells, lactic acid is formed from pyruvic acid.

52. Which of the following is not a parthenocarpic fruit?

(A) Bananas   (B) Apple   (C) Orange   (D) Mango

Ans. (D)

Sol. Mango is not a parthenocarpic fruit.

53. Which revolution played important role in the production of new varieties of food crops?

(A) White revolution

(B) Red revolution

(C) Green revolution

(D) None of the above

Ans. (C)

Sol. Green revolution played important role in the production of new varieties of food crops.

54. The intercellular space of which tissue is filled with lignin?

(A) Collenchyma   (B) Parenchyma   (C) Aerenchyma   (D) Sclerenchyma

Ans. (D)

Sol. Cells of sclerenchyma have deposition of lignin.

55. What is the Phenotypic ratio of F_2 generation of Mendel's dihybrid cross?

(A) $(3 : 1)^2$ (B) $(1 : 2 : 1)^2$ (C) $(1 : 2 : 1)^3$ (D) 3 : 1

Ans. ()

Sol. NA

56. How many secondary spermatocytes are required to form 400 spermatozoa?

(A) 100   (B) 200   (C) 300   (D) 400

Ans. (B)

Sol. 200 secondary spermatocytes are required to form 400 spermatozoa.

57. Which of the following hormone is the other name of LH?

(A) TSH   (B) ICSH   (C) ACTH   (D) FSH

Ans. (B)

Sol. LH is also known as ICSH (interstitial cell stimulating hormone)

58. Which vitamin is produced by Escherichia coli present in our intestine?

(A) B_6 (B) B_7 (C) B_9 (D) B_{12}

Ans. (D)

Sol. Escherichia coli produces vitamin B_{12}.

59. What is the name of the third ventricle of human brain ?

(A) Diocoel   (B) Rhombocoel   (C) Rhinocoel   (D) Paracoel

Ans. (A)

Sol. Third ventricle of human brain is also called diocoel.

60. Which of the following statement is not correct ?

(A) Flow of energy is unidirectional

(B) Lindeman postulated ten percent law

(C) Manganese is a macronutrient

(D) Protein is a macronutrient

Ans. (C)

Sol. Manganese is a micronutrient not a macronutrient.

61. Which of the following factor is a produced means of production ?

(A) Land   (B) Labour   (C) Capital   (D) Organisation

Ans. (D)

Sol. Organisation is a produced means of production which is produced with the help of land, labour and capital.

62. In 2016 Human Development Report published by UNDP, India has been placed at _____

(A) 130th position with 0.609 score   (B) 135th position with 0.608 score

(C) 131th position with 0.624 score   (D) 132th position with 0.624score

Ans. (C)

Sol. In 2016, Human Development Report published by UNDP, India has been placed at 131st position with 0.624 score.

63. Which of the following is not true with respect to Pradhan Mantri Jan Dhan Yojana ?

(A) Zero balance account   (B) Life coverage of Rs. 30000/-

(C) Accidental insurance of rupees one lakh   (D) No interest on deposit

Ans. (D)

Sol. There is a provision of interest on deposits in Pradhan Mantri Jan Dhan Yojana.

64. Which of the following deposits with bank offers cheque facility ?

(A) Time deposit   (B) Recuring deposit   (C) Demand deposit   (D) None of the above

Ans. (C)

Sol. Demand deposit with banks offers cheque facility.

65. GDP is the total volume of _____ product produced during an acounting year in a country.

(A) All goods and services   (B) All final goods and services

(C) All itermidiate goods and services   (D) All intermidiate and final goods and services

Ans. (B)

Sol. GDP is the total volume of all final goods and services produced during an accounting year in a country.

66. Public Distribution System means distribution of essential commoditites to a large number of people through a network of fair-price shops on a recurring basis. The commodities distributed under the system are

(i) Wheat   (ii) Rice   (iii) Pulses   (iv) Sugar

(A) (i), (ii) and (iii)   (B) (i), (ii) and (iv)   (C) (ii), (iii) and (iv)   (D) (i), (iii) and (iv)

Ans. (B)

Sol. Pulses are not distributed under Public Distribution System.

67. Consumer Protection Act, 1986 provides effective safeguards against different types of exploitations. These exploitations are in the form of

(i) Defective goods   (ii) Deficient services   (ii) Unfair trade practices

Which one is true ?

(A) (i) and (ii)   (B) (ii) and (iii)   (C) (i), (ii) and (iii)   (D) (i) only

Ans. (C)

Sol. Consumer Protection Act, 1986 provides effective safeguards against all the given exploitations.

68. Which of the following statement is true for NITI Ayog?

    (i) It will works as a Think Tank

    (ii) It will allocate funds to the Central and State Government

    (iii) It will promote co-operative federalism

    (iv) It will expedite implementation of key projects/ schemes

    (A) (i) and (ii)   (B) (ii) and (iii)   (C) (iii) and (iv)   (D) (ii), (iii) and (iv)

Ans. (A)

Sol. NITI Ayog doesn't promote cooperative federalism and doesn't even expedite implementation of key projects/ schemes.

69. Arrange the following four planets according to their increasing distance from the sun:

    1. Venus   2. Mars   3. Earth   4. Mercury

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

Ans. (B)

Sol. Increasing distance from Sun- Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.

70. Which one of the following volcanoes is situated in Mexico?

    (A) Etna   (B) Semeru   (C) Colima   (D) Purace

Ans. (C)

Sol. Colima is situated in Mexico.

71. Which country is known as " the Land of thousand Lakes"?

    (A) Ireland   (B) Finland   (C) Scottland   (D) Switzer Land

Ans. (B)

Sol. Finland is called "Land of Thousand Lakes".

72. On which river Kariba dam is located ?

    (A) Hudson River   (B) Niger River   (C) Zambazi River   (D) Nile River

Ans. (C)

Sol. Kariba Dam is located in Zimbabwe on Zambazi river.

73. Between which of the two islands the Sunda Strait is situated ?

    (A) Java and Sumatra   (B) Java and Borneo

    (C) Sumatra and Borneo   (D) Little Andaman and Carl Nicobar

Ans. (A)

Sol. Sunda Strait is situated between Java and Sumatra.

74. The Gulf of Mannar is located in the

    (A) Bay of Bengal   (B) Arabian Sea   (C) Gulf of Khombat   (D) Andaman Sea

Ans. (D)

Sol. The Gulf of Mannar is located in the Indian Ocean near Andaman Sea.

75. By which of the following rivers the lands of Punjab and Haryana are irrigated ?

    (A) Jhelum, Beas, Sutlej   (B) Ravi, Yamuna, Sutlej   (C) Ravi, Beas, Sutlej   (D) Jhelum, Beas, Ravi

Ans. (B)

Sol. Ravi, Yamuna and Sutlej irrigate the lands of Punjab and Haryana.

76. Which of the following pairs is correctly matched ?

(A) Durand Line- India and Mayanmar

(B) Radcliff Line- Indian and Pakistan

(C) Mc Mohan Line- India and Nepal

(D) Markat Line- India and Afghanistan

Ans. (B)

Sol. Durand Line lies between India and Afghanistan whereas MacMohan Line lies between India and China. Only Radcliff line between India and Pakistan.

77. Which of the following two island are volcanic islands ?

(A) Kavaratti and New Moor

(B) Kavaratti and Bitra

(C) Pamban and Barren

(D) Barren and Narcondam

Ans. (D)

Sol. Barren and Narcondam are islands of volcanic origin.

78. Bailadila is famous for

(A) Bauxite
(B) Coal
(C) Iron Ore
(D) Copper

Ans. (C)

Sol. Bailadila range is famous for iron ore.

79. What is Obra ?

(A) Atomic Power Plant in Rajasthan

(B) Thermal Power Plant in Uttar Pradesh

(C) Atomic Power Plant in Kalpakkam

(D) Hydro-electric Project in uttar Pradesh

Ans. (B)

Sol. Obra is a Thermal Power Plant in Uttar Pradesh

80. Which one of the following pairs is not correct?

(A) Kanha National Park- Madhya Pradesh

(B) Bandipur National Park- Karnataka

(C) Ranthambore National Park- Gujarat

(D) Sultanpur National Park- Haryana

Ans. (C)

Sol. Ranthambore National Park is located in Rajasthan.

81. Why is the year 1789 famous in the history of the world?

(A) Outbreak of the French Revolution

(B) Outbreak of the Russian Revolution

(C) Outbreak of the American war of Independence

(D) Outbreak of the Industrial Revolution

Ans. (A)

Sol. French revolution took place in the year 1789.

82. Who had published the Communist Manifesto ?

(A) Czar Alexander II

(B) Leo Tolstoy

(C) Maxim Gorkey

(D) Karl Marx and Friederich Engels

Ans. (D)

Sol. Communist Manifesto is the famous work by Karl Marx and Frederich Engels.

83. Who had let the 1917 October Revolution in Russia ?

(A) Rasputin
(B) Lenin
(C) Stalin
(D) Karl Marx

Ans. (B)

Sol. Lenin led the October Revolution in Russia.

84. Which European country had dominated the colonisation of Vietnam ?

(A) Holland
(B) Spain
(C) France
(D) Portugal

Ans. (C)

Sol. France had dominated the colonisation of Vietnam.

85. How was the impact of the First World War on the European economy during 1930's described ?

(A) The Great Economic Recovery   (B) The Great Economic Depression

(C) The Great Economic Stability   (D) The Great opportunity for Economic progress

Ans. **(B)**

Sol. The Great Economic Depression best describes the impact of the First World War on the European economy during 1930s.

86. Who is the author of the book ' Mein Kampf?

(A) Hilter   (B) Mussolini   (C) Napoleon   (D) Lenin

Ans. **(A)**

Sol. Author of Mein Kampf - Adolf Hitler

87. In which session of the Indian National Congress was the 'Purna Swaraj' resolution passed?

(A) Karachi Session   (B) Lahore Session   (C) Madras Session   (D) Bombay Session

Ans. **(B)**

Sol. It was in Lahore Session of 1929 of INC, that the resolution of Purna Swaraj was passed.

88. Which of the following answer options is written is correct chronological order of the given events?

(A) First Round Table Conference Simon Commission, Non-Cooperation Movement Rowlatt Act.

(B) Simon Commission, Rowlatt Act, First Round Table Conference, Non-Cooperation Movement.

(C) Non-Cooperation Movement, Simon Commiossion. First Round Table Conference, Rowlatte Act.

(D) Rowlatt Act, Non-Cooperation Movement, Simon Commission, First Round Table Conference.

Ans. **(D)**

Sol. Correct chronological order - Rowlatt Act(1919), Non-Cooperation Movement (1921), Simon Commission(1928), First Round Table Conference (1931)

89. Who has written 'Geet Govinda'?

(A) Upendra Bhanja   (B) Jagannath Das   (C) Jayadeva   (D) Sarala Das

Ans. **(C)**

Sol. Author of Geet Govind- Jayadeva

90. When did Germany surrender to the Allies in the World War II?

(A) September, 1943   (B) May, 1945   (C) August, 1945   (D) December, 1946

Ans. **(B)**

Sol. Germany surrendered to Allies in May,1945.

91. When did Mahatma Gandhi return to India from South Africa ?

(A) 1914   (B) 1915   (C) 1916   (D) 1917

Ans. **(B)**

Sol. Mahatma Gandhi returned to South Africa in 1915.

92. Which one of the following statements is not true ?

(A) Raja Ram Mohan Roy was a king

(B) Raja Ram Mohan Roy was the founder of the Brahmo Samaj

(C) Raja Ram Mohan Roy was a socio-religious reformer

(D) Raja Ram Mohan Roy supported the abolition of the practice of sati

Ans. **(A)**

Sol. Raja Ram Mohan Roy was not a king but a social reformer.

93. Who accords recognition to a newly formed political party?

(A) The President (B) The Parliament

(C) Election Commission of India (D) The Prime Minister

Ans. (C)

Sol. Election Commission of India recognizes a newly formed political party.

94. Which of the following added the Fundamental Duties' to our constitution ?

(A) 44th Amendment (B) 73rd Amendment (C) 86th Amendment (D) 42nd Amendment

Ans. (C)

Sol. The Fundamental Duties were added to the Constitution of India by 86th Amendment.

95. By whom the Vice President of India is elected ?

(A) Elected members of Parliament (B) All members of Parliament

(C) Members of Rajya Sabha (D) Elected members of State Legislative Assemblies

Ans. (B)

Sol. The Vice President of India is elected by and nominated by elected members of Parliament.

96. Which of the folowign mention " Derictive principles of State policy "?

(A) Articles 3 to 11 (B) Articles 12 to 35 (C) Articles 36 to 51 (D) Articles 19 to 27

Ans. (C)

Sol. Article 36 to 51 mention "Directive Principles of State Policy".

97. Which of the following is a challenge to National Intergration?

(A) Federalism (B) Regionalism (C) Democracy (D) Social Justice

Ans. (B)

Sol. Regionalism is a challenge to National Integration.

98. Which of the following is a National Political party?

(A) Bahaujan Samaj Party (B) Rastriya Janata Dal (C) Trinamool Congress (D) Biju Janata Dal

Ans. (A)

Sol. Bahujan Samaj Party is a National Political Party, all others are State Parties.

99. When was the " Financial Emergency" declared in India?

(A) 1975 (B) 1985 (C) 1995 (D) Never

Ans. (D)

Sol. Financial Emergency has never taken place in India.

100. From which of the following countires the concept of "Independence of Judiciary" has been borrowed by India ?

(A) England (B) Canada (C) Switzerland (D) America

Ans. (D)

Sol. The provision of Independence of Judiciary has been borrowed from the United States of America.