

Max. Marks: 100

SOLUTIONS

Time allowed: 120 minutes

101. The value of $\left[9 \left(\frac{1}{64^{-\frac{1}{3}}} \right) 125^{\frac{1}{3}} \right]^{\frac{1}{4}}$ is :

(1) 9

(2) 3

(3) 81

(4) $9\sqrt[4]{9}$

Ans. (2)

Sol. $\left[9 \left[\frac{1}{64^{-\frac{1}{3}}} \right] 125^{\frac{1}{3}} \right]^{\frac{1}{4}}$

$$[9 \cdot 4 \cdot 5]^{\frac{1}{4}}$$

$$= 3$$

102. If $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$, then the value of $m + n - p^2$ is

(1) mn

(2) -mn

(3) 2 mn

(4) 4 mn

Ans. (4)

Sol. $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$

$$\Rightarrow \sqrt{m} + \sqrt{n} = \sqrt{p}$$

\Rightarrow Squaring both sides:

$$m + n + 2\sqrt{mn} = p$$

$$\Rightarrow m + n - p = -2\sqrt{mn}$$

$$\Rightarrow m + n - p^2 = 4mn$$

103. If $x^2 \cdot \frac{1}{x^2} = 14$, then the value of $x^3 \cdot \frac{1}{x^3}$ is :

(1) 52

(2) 42

(3) 24

(4) 25

Ans. (1)

Sol. $x^2 - \frac{1}{x^2} = 14$

$$\Rightarrow \left(x - \frac{1}{x}\right)^2 = 16$$

$$\Rightarrow x - \frac{1}{x} = 4$$

Taking $+4$,

$$x - \frac{1}{x} = 4$$

Cubing both sides:

$$\left(x - \frac{1}{x}\right)^3 = 64$$

$$\Rightarrow x^3 - \frac{1}{x^3} - 3\left(x - \frac{1}{x}\right) = 64$$

$$\Rightarrow x^3 - \frac{1}{x^3} = 64 + 12 = 76$$

104. The polynomials $ax^3 - 4x^2 + 3x - 4$ and $x^3 - 4x + a$ leave the same remainder when divided by $x - 3$, then the value of a is :

(1) -1

(2) -4

(3) 4

(4) 1

Ans. (1)

Sol. $1 : ax^3 - 4x^2 + 3x - 4$

Acc. to question:

$$27a + 36 + 9 - 4 = 27 - 12 + a$$

$$\Rightarrow 26a = -26$$

$$a = -1$$

105. The bisectors of $\angle B$ and $\angle C$ of a triangle ABC meet at a point O . If $\angle A = 60^\circ$, then $\angle BOC$ is:

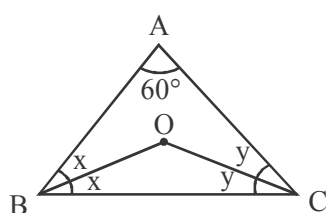
(1) 30°

(2) 60°

(3) 90°

(4) 120°

Ans. (4)



Sol.

$$2x + 2y = 120^\circ$$

$$x + y = 60^\circ$$

$$\Rightarrow \angle BOC = 120^\circ$$

106. The side BC of $\triangle ABC$ is produced to a point D. The bisectors of $\angle ABC$ and $\angle ACD$ meet at point E. If $\angle BAC = 60^\circ$, then $\angle BEC$ is:

(1) 15°

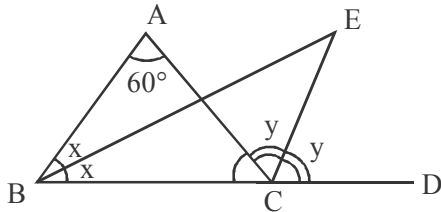
(2) 30°

(3) 60°

(4) 120°

Ans. (2)

Sol.



$$2y = 60 + 2x \quad \text{----- (i)}$$

$$\angle ACB = 180 - 2y$$

In $\triangle BEC$

$$\angle BEC = 180 - x + 180 - y$$

$$= y - x$$

From equation (i) $y - x = 30^\circ$

$$\Rightarrow \angle BEC = 30^\circ$$

107. $\triangle ABC$ is an isosceles triangle in which $AB = AC$. If the side BA is produced to D such that $AD = AB$, then $\angle BCD$ is :

(1) 30°

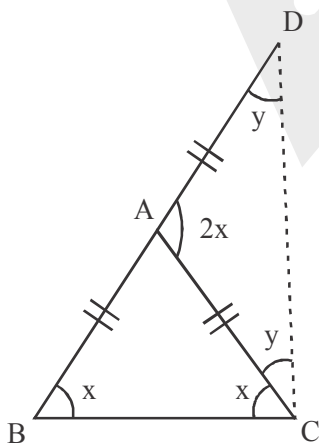
(2) 45°

(3) 60°

(4) 90°

Ans. (4)

Sol.



$$\text{Now } 2y + 2x = 180^\circ$$

$$\Rightarrow y + x = 90^\circ$$

$$\Rightarrow \angle BCD = 90^\circ$$

108. In an A.P., the sum of m terms is equal to n and the sum of n terms is equal to m , then the sum of $(m+n)$ terms is :

(1) $m + n$

(2) $-m - n$

(3) $m - n$

(4) $n - m$

Ans. (2)

Sol. Given $S_m = n$

$$S_n = m$$

$$\Rightarrow \frac{m}{2} [2a + (m-1)d] = n$$

$$\text{Also: } \frac{n}{2} [2a + (n-1)d] = m$$

$$\Rightarrow 2a + (m-1)d = \frac{2n}{m}$$

$$2a + (n-1)d = \frac{2m}{n}$$

$$\text{Subtracting: } m - n \quad d = \frac{2n}{m} - \frac{2m}{n}$$

$$d \quad m - n \Rightarrow 2 \left[\frac{n+m}{mn} - \frac{n-m}{mn} \right]$$

$$\Rightarrow d = \frac{-2(n-m)}{mn} \quad \text{----- (i)}$$

$$\text{Also: } 2a + (m-1)d = \frac{2n}{m}$$

$$\Rightarrow 2a + (m+n-1)d = \frac{2n}{m} + nd$$

$$= \frac{2n}{m} \times \left[\frac{-2(n-m)}{mn} \right] \quad \text{from (i)}$$

$$= -2$$

Thus, sum of $m + n$ terms

$$= \left(\frac{m-n}{2} \right) [2a^m - n - 1 d]$$

$$= -m - n$$

109. If the roots of the equation $a^2 + b^2 x^2 - 2b(a+c)x + b^2 + c^2 = 0$ are equal, then :

- (1) $2b = a + c$ (2) $b = \frac{2ac}{a+c}$ (3) $b^2 = ac$ (4) $b = ac$

Ans. (3)

Sol. $(a^2 + b^2)x^2 - 2b(a+c)x + b^2 + c^2 = 0$

$$\Rightarrow D = 0$$

$$\Rightarrow 4b^2(a+c)^2 - 4(a^2 + b^2)(b^2 + c^2)$$

$$\Rightarrow b^2 [4a^2 + 8ac + 4c^2 - a^2 - b^2 - b^2 - c^2]$$

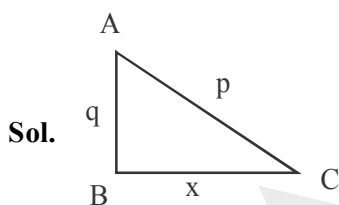
$$\Rightarrow 2acb^2 = a^2c^2 + b^4$$

$$\Rightarrow (b^2 - ac)^2 = 0 \Rightarrow b^2 = ac$$

110. A right triangle has hypotenuse of length p cm and one side of length q cm. If $(p - q) = 1$, then the length of third side is :

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

Ans. (2)



$$x^2 + q^2 = p^2$$

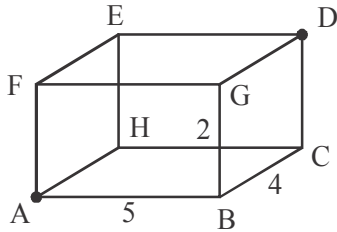
$$x = \sqrt{p^2 - q^2} = \sqrt{p - q} \sqrt{p + q} = \sqrt{2q - 1} \sqrt{2q + 1}$$

111. The longest pole that can be kept in a room of dimensions $5m \times 4m \times 2m$ is

- (1) $9\sqrt{5}m$ (2) $6\sqrt{5}m$ (3) $3\sqrt{5}m$ (4) $5\sqrt{3}m$

Ans. (3)

Sol.



Longest pole joint A & D

$$AC = \sqrt{25 + 16} = \sqrt{41}$$

$$AD = \sqrt{41 + 4}$$

$$= \sqrt{45}$$

$$= 3\sqrt{5} \text{ m}$$

112. If the volume of a sphere is equal to its surface area, then the circumference of a cross sectional circle whose centre coincides with the sphere is :

(1) 2π

(2) 4π

(3) 6π

(4) 8π

Ans. (3)

Sol. Given

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

$$R = 3 \text{ Circumference} = 2\pi r = 6\pi$$

113. A circle is inscribed in a triangle ABC with right angle at A. The length of the two sides containing the right angle are 6 cm and 8 cm respectively. The radius of the circle is:

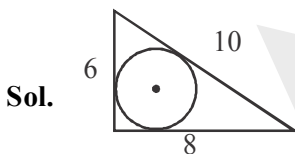
(1) 2 cm

(2) 6 cm

(3) 8 cm

(4) 10 cm

Ans. (1)



$$\text{Area of } \Delta = \frac{1}{2} \times 6 \times 8$$

$$= 24$$

$$\text{Semi perimeter} = 12$$

$$r = \frac{\Delta}{s} = \frac{24}{12} = 2 \text{ cm}$$

114. A fair die is thrown once. The probability of getting neither a prime nor a composite number is :

- (1) 1 (2) 0 (3) $\frac{5}{6}$ (4) $\frac{1}{6}$

Ans. (4)

Sol. $\frac{1}{6}$

115. If the product of two zeroes of the polynomial $x^3 - 6x^2 + 11x - 6$ is 2, then the third zero is :

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

Ans. (3)

Sol. $x^3 - 6x^2 + 11x - 6 = 0$

$$\alpha\beta\gamma = 6$$

$$\text{Given } \alpha\beta = 2$$

$$\Rightarrow \gamma = 3$$

116. If the HCF of 55 and 22 is expressed in the form of $55m - 22 \times 2$ then the value of m is :

- (1) 2 (2) 1 (3) 11 (4) 22

Ans. (2)

Sol. H.C.F of 55 & 22 = 11

$$\text{Given: } 55m - 2 \times 22 = 11$$

$$\Rightarrow m = 1$$

117. The graphs of the linear system $x + y = 1; 2x + 2y = 2$ gives :

- (1) no solution (2) unique solution (3) infinitely many solutions (4) two solutions

Ans. (3)

Sol. Conceptual

118. If $\tan \theta = \frac{a}{x}$, then the value of $\frac{x}{\sqrt{a^2 + x^2}}$ is :

- (1) $\cos \theta$ (2) $\sin \theta$ (3) $\operatorname{cosec} \theta$ (4) $\sec \theta$

Ans. (1)

Sol. Conceptual

119. The remainder when $x^n - n$ divided by $x - 1$ is :

- (1) n (2) cannot be determined (3) n + 1 (4) 0

Ans. (3)

Sol. Conceptual

120. Which of the following statements are not true ?

- (a) sum of two irrational numbers always irrational (b) difference between two irrational numbers is irrational
 (c) product of two irrational numbers irrational (d) quotient of two irrational numbers is irrational
 (1) (a) and (b) only (2) (a), (b), (c) and (d) (3) (a), (b) and (c) only (4) none of the above

Ans. Conceptual

Sol. (2)

121. A car travels from Chennai to Bengaluru with a speed of 60 km/hr and returns back along the same path with a speed of 40 km/hr- The average speed of the car is given by:

- (1) 50 km/1hr (2) 13.8 m/s (3) 48 km/hr (4) 172.8 m/s

Ans. (3)

Sol. $V_{av} = \frac{2v_1v_2}{v_1 + v_2} = \frac{2 \times 60 \times 40}{60 + 40} = \frac{2 \times 60 \times 40}{100} = 48 \frac{\text{km}}{\text{hr}}$

122. What will be the percentage change in momentum of a body when both its mass and velocity are doubled ?

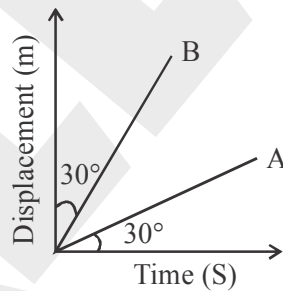
- (1) 400 (2) 75 (3) 500 (4) 300

Ans. (4)

Sol. $p^1 = m^1v^1 = 2m \cdot 2v = 4mv = 4p$

$\% \text{ change} = \frac{4p - p}{p} \times 100 = 300\%$

123. The displacement-time graph for two particles are shown in the figure. The ratio of velocity of A to velocity of B is :

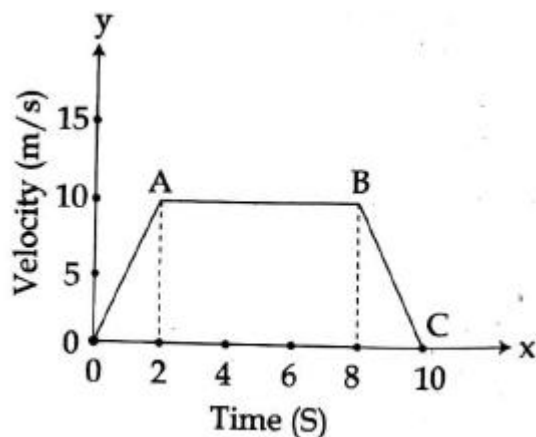


- (1) 1 (2) 3 (3) $\frac{1}{3}$ (4) $\sqrt{3}$

Ans. (3)

Sol. $\frac{V_A}{V_B} = \frac{\tan 30}{\tan 60} = \frac{\frac{1}{\sqrt{3}}}{\sqrt{3}} = \frac{1}{3}$

124. The velocity - time graph of a body moving along a straight line is shown below. The acceleration of the body along OA, AB and BC is :



(1) $5 \text{ m/s}^2, 0, -5 \text{ m/s}^2$

(2) $-5 \text{ m/s}^2, 0, 5 \text{ m/s}^2$

(3) $5 \text{ m/s}^2, 1.6 \text{ m/s}^2, -5 \text{ m/s}^2$

(4) $-5 \text{ m/s}^2, 1.6 \text{ m/s}^2, 5 \text{ m/s}^2$

Ans. (1)

Sol. $a_{OA} = \frac{\Delta v}{\Delta t} = \frac{10-0}{2-0} = 5 \text{ m/s}^2$

$a_{AB} = \frac{0}{\Delta t} = 0 \text{ m/s}^2$

$a_{BC} = \frac{0-10}{10-8} = -5 \text{ m/s}^2$

125. Two bodies A and B having masses 2 kg and 4 kg respectively are separated by 2m. Where should a body of mass 1 kg be placed so that the gravitational force on this body due to A and B is zero?

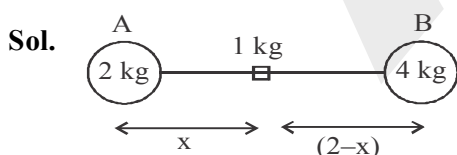
(1) 8.3 m

(2) 0.83 m

(3) 3.8 m

(4) 0.38 m

Ans. (2)



$\frac{G \cancel{2} 1}{x^2} = \frac{G \cancel{4}^2 1}{(2-x)^2}$

$$\frac{1}{x^2} = \frac{2}{2-x^2}$$

$$\Rightarrow \frac{1}{x} = \frac{\sqrt{2}}{2-x} \Rightarrow 2-x = \sqrt{2}x$$

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

$$\Rightarrow x = \frac{2}{1 + \sqrt{2}} = 0.83\text{m}$$

126. A ship of mass 3×10^7 kg initially at rest is pulled by force of 5×10^4 N through a distance of 3 m. Assuming that the resistance due to water is negligible the speed of the ship is:

- (1) 1.5 m/s (2) 60 m/s (3) 0.1 m/s (4) 5 m / s

Ans. (3)

Sol. a $\frac{F}{m} = \frac{5 \times 10^4}{3 \times 10^7}$

$$V^2 - u^2 = 2as = 0 \left(\frac{2 \times 5 \times 10^4}{3 \times 10^7} \times 3 \right) = \frac{10^5}{10^7} = 10^{-2} = \frac{1}{100}$$

$$V^2 = \frac{1}{100} \Rightarrow V = \frac{1}{10} = 0.1 \text{ m/s}$$

127. An electric bulb is rated 220 V, 110 W. When it is operated on 110 V, the power consumed will be :

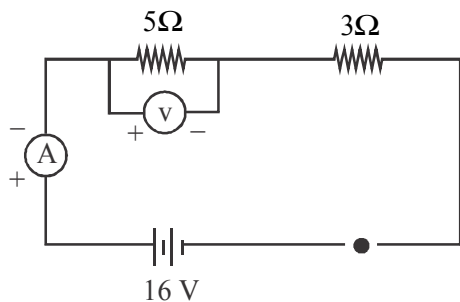
- (1) 55 W (2) 110 W (3) 25 W (4) 27.5 W

Ans. (4)

Sol. R $\frac{V^2}{P} = \frac{220 \times 220}{110}$

$$P^1 = \frac{V^2}{R} = \frac{110 \times 110}{220 \times 220} \times 110 = \frac{110}{4} = 27.5 \text{ W}$$

128.



In the above electrical circuit, the readings shown by the ammeter and voltmeter are :

- (1) 2 A, 10 V (2) 3.2 A, 16 V (3) 2 A, 16 V (4) 3.2 A, 10 V

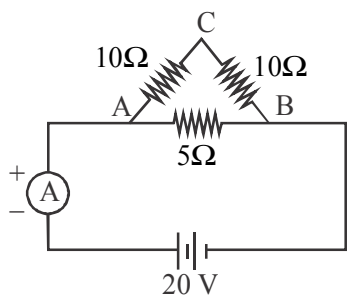
Ans. (1)

Sol. $R_{eq} = 5 + 3 = 8\Omega$

$$I = \frac{V}{R_{eq}} = \frac{16}{8} = 2A$$

Potential across 5Ω resistor, $V' = IR = 2 \times 5 = 10V$.

129.



In the circuit shown the current in the ammeter is :

- (1) 5 A (2) 4 A (3) 1.5 A (4) 8 A

Ans. (1)

Sol. $R' = 20\Omega$

$$R_{eq} = \frac{20 \times 5}{20 + 5} = \frac{100}{25} = 4\Omega$$

$$I = \frac{V}{R} = \frac{20}{4} = 5A$$

130. If 5 coulombs of charge flows through a conductor in 2 seconds, then the number of electrons flowing through a conductor in one second approximately is :

- (1) 30×10^{18} (2) 15×10^{18} (3) 6×10^{18} (4) 12×10^{18}

Ans. (2)

Sol. In 2s \rightarrow 5 C $Q = ne$

$$\ln 1s \rightarrow 2.5 C \quad n \frac{Q}{e} \frac{5}{2 \times 1.6 \times 10^{-19}} 1.56 \times 10^{19} = 15 \times 10^{18}$$

131. A stone is dropped from the top of a tower 490 m high into a pond of water at the base of the tower. The splash is heard after (Given $g = 9.8 \text{ m/s}^2$, speed of sound = 350 m/s)

- (1) 11.4 sec (2) 10 sec (3) 22.8 sec (4) 20 sec

Ans. (1)

$$\text{Sol. } t = \sqrt{\frac{2h}{g}} + \frac{h}{v_{\text{sound}}} = \sqrt{\frac{2 \times 490}{9.8}} + \frac{490}{350} = \sqrt{100} + 1.4 = 10 + 1.4 = 11.4 \text{ s}$$

132. Infrasound can be heard by :

- (1) Dog (2) Bat (3) Rhinoceros (4) Tiger

Ans. (3)

Sol. Conceptual. Rhinoceros can hear infrasounds.

133. Among the statements which is/are correct ?

Acceleration due to gravity :

- (a) decreases from equator to poles (b) decreases from poles to equator

- (c) is maximum at the centre of the earth

- (1) (a) only (2) (b) and (c) only (3) (c) only (4) (b) only

Ans. (4)

Sol. Acceleration due to gravity decreases from poles to equator and is maximum at surface and zero at centre.

134. An element "X" has six electrons in the "M" shell. It belongs to:

- (1) 3rd period, 16th group (2) 2nd period, 14th group

- (3) 3rd period, 13th group (4) 2nd period, 15th group

Ans. (1)

Sol. "M" shell $6e^-$ given

e^- configuration 2, 8, 6 sulphur

Group 16 period 3

135. Pick out the Isobar pair.

- (1) ${}_1\text{H}^1, {}_1\text{H}^2$ (2) ${}_6\text{C}^{13}, {}_7\text{N}^{14}$ (3) ${}_{17}\text{Cl}^{35}, {}_{17}\text{Cl}^{37}$ (4) ${}_{18}\text{Ar}^{40}, {}_{20}\text{Ca}^{40}$

Ans. (4)

Sol. Isobar = same mass number and different atomic number.

136. An example of a homo atomic molecule

- (1) Ozone (2) Ammonia (3) Methane (4) Sulphur di oxide

Ans. (1)

Sol. Ozone O_3 Ammonia NH_3

Methane CH_4 Sulphur dioxide SO_2

137. Identify the wrong statement in the following :

- (1) Sodium benzoate is used as food preservative.
- (2) Sulphuric acid is called as the 'King of Chemicals'.
- (3) The pH of acid is equal to 7.
- (4) Curd contains lactic acid.

Ans. (3)

Sol. pH of acids are less than 7

138. The metal present in chlorophyll is

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

Ans. (3)

Sol. "Mg" is present in chlorophyll

139. The hardening of plaster of paris on reaction with water is due to the formation of :

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

Ans. (2)

Sol. $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O} + \frac{3}{2}\text{H}_2\text{O} \longrightarrow \underset{\text{Gypsum}}{\text{CaSO}_4 \cdot 2\text{H}_2\text{O}}$

140. Foul-smelling of eatables prepared by using oil and fat is due to :

- (1) Reaction with Nitrogen in air
- (2) Reaction with CO_2 in air
- (3) Reaction with sulphur di oxide in air
- (4) Reaction with oxygen in air

Ans. (4)

Sol. Foul-smelling of eatable due to oxidation

141. Magnesium ribbon starts floating is placed in hot water. Why ?

- (1) Light metal
- (2) Highly reactive
- (3) Hydrogen gas stick at the bottom the metal
- (4) Neither light nor heavy

Ans. (3)

Sol. $\text{Mg} + \underset{\substack{\text{hot} \\ \text{water}}}{\text{H}_2\text{O}} \longrightarrow \text{Mg(OH)}_2 + \text{H}_2$

142. Common Hydrogen is also called as :

- (1) Protium atom
- (2) Deuterium atom
- (3) Tritium atom
- (4) None of the above

Ans. (1)

Sol. Hydrogen = Protium

143. Arrange the following in the increasing order of forces of attraction :

- (1) water, air, sugar
- (2) O_2 , H_2O , sugar
- (3) salt, air, fruit juice
- (4) sugar, oil, air

Ans. (2)

Sol. $\underset{\text{Gas}}{\text{O}_2}$ $\underset{\text{Liquid}}{\text{H}_2\text{O}}$ $\underset{\text{Solid}}{\text{Sugar}}$

144. Arrange the following in the increasing order of forces of attraction :

- (1) Electrostatic force between the opposite ions
- (2) Electrostatic force between the same ions
- (3) Weak intermolecular forces between opposite ions
- (4) Both electrostatic and intermolecular force between the opposite ions.

Ans. (1)

Sol. Electrostatic forces are reason behind solid form of ionic compound

145. The rate of Chemical reaction depends on :

- (1) absence of Catalyst
- (2) greater the surface area of the reactant
- (3) decrease in temperature
- (4) low concentration of the reactant

Ans. (2)

Sol. As Surface area increases, Rate of reaction also increases.

146. The best method to detect and identify of the drugs present in the blood of criminals in Forensic Science is :

- (1) Sublimation
- (2) Evaporation
- (3) Chromatography
- (4) Filtration

Ans. (3)

Sol. Chromatography is the method for drug detection.

147. Match the following

Column - I

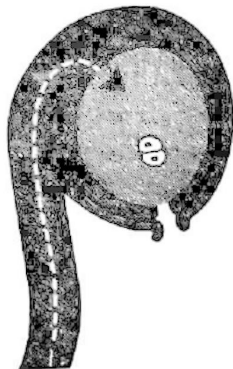
Column - II

- | | |
|------------------------|---|
| (a) Seed borne disease | (i) Blast of rice |
| (b) Soil borne disease | (ii) Bacterial blight of rice |
| (c) Air borne disease | (iii) Leaf spot of rice |
| (d) Water borne | (iv) Tikka disease of disease groundnut |
- (1) (a)-(ui), (b)-(iv), (c)-(i), (d)-(ii) (2) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
(3) (a)-(u), (b)-(iii), (c)-(iv), (d)-(i) (4) (a)-(i), (b)-(ii), (c).(Mi), (d)_iv)

Ans. (2)

Sol. (a) Seed borne disease (i) Leaf spot of rice
(b) Soil borne disease (ii) Blast of rice
(c) Air borne disease (iii) Tikka disease of disease groundnut
(d) Water borne (iv) Bacterial blight of rice
(a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

148. Observe the diagram given below. Read the question and select the correct answer.



- (a) Which gives the nourishment for the developing embryo sac ?
- (b) After fertilization, which develops into a seed coat ?
- (c) Name the nuclei which face towards the chalazal end.
- (d) When a soaked seed is pressed, the water oozes out through

- (1) Nucellus, Integuments, Micropyle, Antipodals
- (2) Antipodals, Micropyle, Nucellus, Integuments
- (3) Integuments, Nucellus, Antipodals, Micropyle
- (4) Nucellus, Integuments, Antipodals, Micropyle

Ans. (4)

- Sol.** (a) Which gives the nourishment for the developing embryo sac - Nucellus
(b) After fertilization, which develops into a seed coat - Integuments
(c) Name the nuclei which face towards the chalazal end. - Antipodals
(d) When a soaked seed is pressed, the water oozes out through - Micropyle

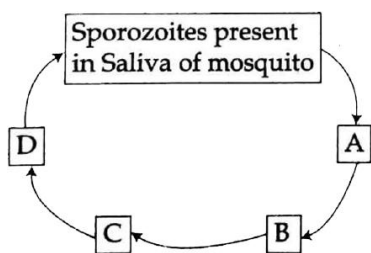
149. Soil contains decomposed matter. Plants that grow from the soil absorb nutrient elements. When we eat the plants, the nutrients enter into our body. After our death, when our body is buried into the soil, our body will become decomposed matter. This cyclic process refers to :

- (1) Life cycle
- (2) Bio-Geo Chemical cycle
- (3) Biological cycle
- (4) Geological cycle

Ans. (2)

Sol. Soil contains decomposed matter. Plants that grow from the soil absorb nutrient elements. When we eat the plants, the nutrients enter into our body. After our death, when our body is buried into the soil, our body will become decomposed matter. This cyclic process refers to Biological cycle.

150. Choose the correct series of life cycle of malarial parasite.



- (1) A - Life cycle in human liver B - Life cycle in erythrocytes C - Sucking of gametocytes by mosquito D - Life cycle in the body of mosquito
- (2) A-Life cycle in erythrocytes B - Life cycle in human liver C - Sucking of gametocytes by mosquito D - Life cycle in the body of mosquito
- (3) A - Life cycle in erythrocytes B - Sucking of gametocytes by mosquito C - Life cycle in the body of mosquito D - Life cycle in human liver
- (4) A-Life cycle in the body of mosquito B - Life cycle in erythrocytes C - Sucking of gametocytes by mosquito D - Life cycle in human liver

Ans. (1)

Sol. A - Life cycle in human liver
 B - Life cycle in erythrocytes
 C - Sucking of gametocytes by mosquito
 D - Life cycle in the body of mosquito

151. Find out the true and false statements from the following :

- (a) Pepo is developed from tricarpellary ovary
 - (b) Drupe is developed from pentacarpellary ovary
 - (c) Pome is called a pseudofruit
 - (d) Hesperidium is developed from multicarpellary ovary
- (1) (a) true (b) false (c) true (d) false
 - (2) (a) true (b) false (c) true (d) true
 - (3) (a) false (b) true (c) false (d) true
 - (4) (a) false (b) false (c) true (d) true

Ans. (2)

Sol. Drupe is developed from pentacarpellary ovary is monocarpellary.

152. Choose the **incorrect** pair.

- | | |
|----------------------------------|-------------------------------------|
| (1) Stomata - transpiration | (2) Osmosis-Semi permeable membrane |
| (3) Guard Cells - Potassium ions | (4) Exosmosis-Turgidity |

Ans. (4)

Sol. Exosmosis - Flaccidity

153. Assertion (A) : Mule is the product of inter specific hybridization.

Reason (R) : Mule is produced from cross between female donkey and male horse.

- | | |
|-------------------------------------|----------------------------------|
| (1) (A) is correct; (R) is wrong | (2) Both (A) and (R) are correct |
| (3) (A) is wrong and (R) is correct | (4) Both (A) and (R) are wrong |

Ans. (1)

Sol. Mule is produced from cross between female horse and male donkey.

154. Centipede and earthworms have a segmented body, but they are in two different phyla. Identify the phyla they belong to.

- (1) Arthropoda and Annelida (2) Arthropoda and Aschelminthes
(3) Annelida and Aschelminthes (4) None of the above

Ans. (1)

Sol. Centipede and earthworms have a segmented body, but they are in two different phyla they belong to Arthropoda and Annelida

155. Lysosomes are considered as suicidal bags of cell. The reason is:

- (1) Lysosomes contain poison required to kill the cell.
(2) Lysosomes contain lytic enzyme to digest the whole cell content.
(3) Lysosomes contain genes to stop cellular activities.
(4) Lysosomes do not permit oxidation process of the cell.

Ans. (2)

Sol. Lysosomes are considered as suicidal bags of cell. The reason is lysosomes contain lytic enzyme to digest the whole cell content.

156. Pick out the items which has sequen arrangement.

- (1) Zygotene → Leptotene → Pachytene → Diplotene → Diakinesis
(2) Diakinesis → Zygotene → Leptotene → Pachytene → Diplotene
(3) Leptotene → Zygotene → Pachytene → Diplotene → Diakinesis
(4) Leptotene → Pachytene → Diplotene → Diakinesis → Zygotene

Ans. (3)

Sol. Leptotene → Zygotene → Pachytene → Diplotene → Diakinesis

157. Assertion (A) : The pituitary gland is called as 'the Conductor of Endocrine Orchestra'.

Reason (R) : The pituitary gland regulates the other endocrine glands.

- (1) Both (A) and (R) are true and (R) explains (A)
(2) Both (A) and (R) are true but (R) doesn't explain (A)
(3) (A) is true but (R) is false
(4) (A) is false but (R) is true

Ans. (1)

Sol. The pituitary gland is called as 'the Conductor of Endocrine Orchestra' because it regulates the other endocrine glands.

158. The parental genotypes are $BB \times bb$. The probability of having bb genotype in the F_1 generation is :

- (1) 25% (2) 50% (3) 75% (4) 0%

Ans. (4)

Sol. bb is not possible because one of the parent has BB so during gamete formation it will not give b .

159. Which of the following statement is not correct about vasopressin hormone ?

- (1) It constricts the blood vessels and raises the blood pressure.
(2) Vasopressin helps in the reabsorption of water.
(3) Its less production results in diabetes insipidus.
(4) It dilates the blood vessels and raises the blood pressure.

Ans. (4)

Sol. Dilation of the blood vessels will lead to fall in the blood pressure.

160. Subsequent generations show greater improvement in genetic characters. It is seen in higher animals particularly.

This is due to :

- (1) crossing over process of sexual reproduction.
- (2) living in an area for many generations.
- (3) due to pressure for improvement of characters from peers.
- (4) asexual reproduction brings improvement.

Ans. (1)

Sol. Subsequent generations show greater improvement in genetic characters. It is seen in higher animals particularly.

This is due to crossing over process of sexual reproduction.

161. Arrange the following events chronological order :

- (a) The League of Free Nations Association
- (b) The League of Nations Society
- (c) The League of Nations
- (d) The World League for peace

(1) (b), (a), (c), (d)

(2) (a), (b), (d), (c)

(3) (a), (c), (d), (b)

(4) (b), (d), (a), (c)

Ans. (4)

162. Who was the designer of Indian National Flag ?

- (1) Bankim Chandra Chatterjee
- (3) Pinkali Venkayya

- (2) Rabindranath Tagore
- (4) Bipin Chandra Pal

Ans. (3)

163. The famous monument built to commemorate the end of plague in India in the year 1591.

- (1) Buland Darwaza
- (3) Gol Gumbaz

- (2) Charminar
- (4) Gol Konda

Ans. (2)

164. Who was in known as the heroine of Quit India Movement

- (1) Sucheta Kriplani
- (2) Sarojini Naidu
- (3) Jhansi Rani Lakshmi Bai
- (4) Aruna Asaf Ali

Ans. (4)

165. Name the Greek philosopher who was the teacher of Alexander the Great and the student of Plato.

(1) Aristotle

(2) Socrates

(3) Democritus

(4) Pythagoras

Ans. (1)

166. Which is called the 'Cradle of Indian Temple Architecture' ?

(1) Ajanta

(2) Ellora

(3) Aihole

(4) Chithannavasal

Ans. (3)

167. Rabindranath Tagore surrendered his 'Knighthood' to the British after the event of :

(1) Jallianwalabagh Massacre

(2) Surat Split

(3) Chouri Chaura Incident

(4) Non Cooperation Movement

Ans. (1)

- 168.** The dead bodies were preserved by the Egyptians using Natron salt. Its main constituents are :
(1) Sodium carbonate and sodium bicarbonate
(2) Sodium carbonate and sodium acetate
(3) Sodium bicarbonate and sodium benzoate
(4) Sodium carbonate and sodium phosphate
Ans. (1)
- 169.** From which year Kamarajar's birthday is celebrated as 'Educational Development Day' ?
(1) 2005 (2) 2006 (3) 2007 (4) 2008
Ans. (2)
- 170.** The first Indian ruler who organized pilgrimage to Haj at the expense of the state.
(1) Humayun (2) Babar (3) Akbar (4) Jahangir
Ans. (3)
- 171.** Name the war fought between the period 1912-14.
(1) The Second Anglo Boer War (2) The Russian Civil War
(3) First Balcan War (4) Jutland War
Ans. (3)
- 172.** Choose the incorrect pair.
(1) Salem - Kolli hills
(2) Villupuram - Kalvarayan hills
(3) Trichy - Pachaimalai
(4) Srivilliputhur - Sathuragiri hills
Ans. (1)
- 173.** Kayal goes to her grandpa's place, Coimbatore along with her sister. She says about the type of soil in Coimbatore to her sister. What is the type of soil ?
(1) Alluvial soil (2) Black soil (3) Laterite soil (4) Red loams
Ans. (4)
- 174.** Appiko movement is synonymous to Chipko movement started in :
(1) Kerala (2) Odisha (3) Tamil Nadu (4) Karnataka
Ans. (4)
- 175.** Which planet has its axis highly tilted ?
(1) Earth (2) Uranus (3) Mars (4) Mercury
Ans. (2)
- 176.** Which famous pass, between India and China reopened for trade after 44 years ?
(1) Nathu La (2) Shipki La (3) Jelep La (4) Karakoram
Ans. (1)
- 177.** Minor ports are
(1) Tidal port (2) Anchorage port (3) Duty free port (4) Entrepot port
Ans. (2)

178. Which Wildlife Reserve in India was started in 1974 to protect Tiger population ?

- (1) Ranthambore National Park (2) Bandipur National Park
(3) Jim Corbet National Park (4) Kanha Tiger Reserve

Ans. (2)

179.



Identify the rivers marked in the above map of India.

- (1) (a) Yamuna, (b) Mahanadi, (c) Krishna (2) (a) Ganga, (b) Mahanadi, (c) Krishna
(3) (a) Narmada, (b) Godavari, (c) Tapti (4) (a) Brahmaputra, (b) Ganga, (c) Mahanadi

Ans. (1)

180. Which instrument is used to measure wind speed ?

- (1) Hygrometer (2) Beaufort scale (3) Wind vane (4) Bolometer

Ans. (2)

181. What were the old names of Zambia and Zimbabwe ?

- (1) North West Africa and South West Africa
(2) Aberdeen and Abyssinia
(3) Northern Rhodesia and Southern Rhodesia
(4) British Honduras and Bechuanaland

Ans. (3)

- 182.** Which of the following statement(s) is/are correct ?
 (a) Red and yellow soils develop a reddish colour due to diffusion of magnesium in crystalline and metamorphic rocks.
 (b) Black Soils are generally rich in phosphoric content.
 (1) (a) only (2) (b) only (3) (a) and (b) (4) None

Ans. (4)

- 183.** Match the following :
 (a) Bandung conference (i) 1968
 (b) NonProliferation Treaty (ii) 1996
 (c) Nuclear Test Ban Treaty (iii) 1963
 (d) Comprehensive Nuclear Test Ban Treaty (iv) 1955
 (1) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii) (2) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
 (3) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i) (4) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)

Ans. (3)

- 184.** Pick out the wrong statement about Principles of Pancha Sheel.
 (1) Each country should respect the territorial integrity and sovereignty of others.
 (2) People's representative should be elected through election.
 (3) No one should try to interfere in the internal affairs of others.
 (4) All country shall strive for equality and mutual benefits.

Ans. (2)

- 185.** Who is the India's first transgender Judge in Lok Adalat ?
 (1) Joyita Mondal (2) Swathi Bidhan Baruah
 (3) Sathyasri Sharmila (4) Prithika Yashini

Ans. (1)

- 186.** Pick the odd man out
 (1) India (2) Britain (3) Spain (4) Saudi Arabia

Ans. (4)

- 187.** Find the correct statement:
 Statement (A) : The Supreme Court cannot interfere in the judgements declared by the Military Tribunals.
 Statement (B): Appeal can be taken from Military Tribunals to Supreme Court
 (1) (A) and (B) are correct (2) (B) is correct
 (3) (A) is correct (4) (A) and (B) are wrong

Ans. (2)

- 188.** Who has the authority to give suggestions to the president on politically legal problems ?
 (1) Supreme Court (2) Parliament (3) Prime Minister (4) Governor

Ans. (1)

- 189.** 61st amendment of the Constitution Act of _____ has lowered the voting age from 21 years to 18 years.
 (1) 1998 (2) 1978 (3) 1968 (4) 1988

Ans. (4)

190. Which two countries got independence in the year 1971 ?

- (1) Cameroon and Seychelles (2) Bangladesh and Bahrain
(3) Bahamas and Mozambique (4) Fiji and Papua New Guinea

Ans. (2)

191. Which of the following is not an example of an exercise of a fundamental right ?

- (1) Religious missionaries set up schools
(2) Businessman from Tamil Nadu sets up a restaurant in Assam
(3) An accused engages a lawyer to defend his case
(4) A worker forced to render a free service

Ans. (4)

192. Choose the two sovereign countries where Tamil is the official language.

- (1) Srilanka, Singapore (2) Srilanka, Malaysia
(3) Singapore, Mauritius (4) Malaysia, Singapore

Ans. (1)

193. Which Chief Justice of India has acted as the Acting President of India ?

- (1) T.S. Thakur (2) Mohammad Hidayatullah
(3) Ranganath Mishra (4) Mirza Hameedullah Beg

Ans. (2)

194. The First Woman Chairperson of SBI :

- (1) Arundhati Bhattacharya (2) Rekha Sharma
(3) Girija Vyas (4) Jayanthi Patnaik

Ans. (1)

195. Which is the tenth largest stock exchange in the world and oldest stock exchange in South Asia ?

- (1) National Stock Exchange (2) Madras Stock Exchange
(3) Bombay Stock Exchange (4) Calcutta Stock Exchange

Ans. (3)

196. Which Finance Minister has presented the maximum number of union budgets ?

- (1) Pranab Mukherjee (2) Morarji Desai (3) Yashwant Sinha (4) P. Chidambaram

Ans. (2)

197. Expand-FERA:

- (1) Foreign Exchange and Resources Act (2) Financial Exchange Regulation Act
(3) Fiscal Exchange Reserves Act (4) Foreign Exchange Regulation Act

Ans. (4)

198. Percapita income is calculated by :

(1) $\frac{\text{Total Population}}{\text{Gross Domestic Pr oduct}}$

(2) $\frac{\text{Total Population}}{\text{National Income}}$

(3) $\frac{\text{National Income}}{\text{Total Population}}$

(4) $\frac{\text{Gross Domestic Pr oduct}}{\text{Total Population}}$

Ans. (3)

199. MGNREGA 2005 guarantees

(1) Emancipation of women

(2) Child upliftment

(3) 100 days of employment

(4) Minimum support price for farmers

Ans. (3)

200. State Bank of India before Nationalisation was known as :

(1) General Bank of India

(2) Bank of Hindustan

(3) Grand Bank

(4) Imperial Bank of India

Ans. (4)