

“सबसुलभ र गुणस्तरिय शिक्षा, हाम्रो प्रतिबद्धता”

MECEE BL

MODEL EXAM SERIES - II

Date : 2083-06-20

Hints & Solutions



9866142355

Zoology

1. a) Pseudostratified ciliated columnar epithelium : found in male reproductive tract and respiratory tract
2. c)
3. a)
 - Longest-Sartorius
 - Smallest-Stapedius
 - Largest-Gluteus maximus
4. c)
 - The unmyelinated gaps or constriction in the axons are called Nodes of Ranvier.
5. d)
 - Capillaries allow for exchanges between the blood and body cells, or between the blood and air in the lung tissues. The capillaries connect the arterioles and venules. Capillaries are microscopic structures. The most important structural feature of capillaries is their extreme thinness only one layer of flat, endothelial cells composes the capillary membrane. Instead of three layers or coats in arteries and veins, the capillary wall is composed of only one layer, the tunica interna. Substances such as glucose, oxygen, and wastes can quickly pass through it on their way to or from the cells. Smooth muscle cells, that are called precapillary sphincters guard the entrance to the capillary and determine into which capillary blood will flow.
6. d)
 - The main function of goblet cells to produce mucus which makes surface of alimentary canal smooth for passage of food.
7. c)
8. b)
 - Male hormones called androgens are produced by interstitial cells of Leydig by stimulation of ICSH from anterior pituitary.
9. c)
 - Highest concentration of urea is found in Hepatic Portal Vein as urea is formed in liver and enter circulation through hepatic vein.
10. b)
11. d)
 - Medulla oblongata consists of Vasomotor centre , Cardiac centre , Respiratory centre.
12. c)
 - Rete testis to caput epididymis-Vasa efferentia/ ductuli efferentes
 - Continuation of Caput epididymis-Vasa differentia.
13. d)
 - Autosome-22 pairs
 - Sex chromosome-1 pair(XY in male ,XX in female).
14. d)
 - Hemoglobin is an iron-containing protein that is responsible for carrying oxygen in the blood. It is made up of four globin polypeptide chains and four heme groups, each of which contains an iron atom that can bind reversibly to oxygen molecules 1. Therefore, there are four heme molecules present in one molecule of hemoglobin.
15. a)
 - Otolith is responsible for static equilibrium.
 - Endolymph is responsible for dynamic equilibrium.
16. b)
 - Chloropsin-Green light
 - Cyanopsin-Blue light
 - Rhodopsin-Rods
 - Erythroopsin-Red light
17. a)
18. d)

19. d)
 - Industrial melanism-Demonstrates Natural Selection
 - Initiating force of evolution-Mutation
 - Ultimate source of variation-Mutation
20. c)
 - Age of rocks-potassium argon method
 - Age of fossils-C14 dating method
 - Age of ancient geographic formation-uranium lead method.
21. a)
 - Artist sense was first appeared in Cro-Magnan man.
22. d)
 - Homo Habilis-Nut cracker fossil man.
23. d)
 - Fat storage>Excretion.
24. a)
 - @SPent-enteronephric
 - Septal and Pharyngeal nephridia-Enteronephric nephridia.
25. b)
 - Accessory gland located at 17th and 18th segments,opens at 18th segments along with male genital papillae.
26. c)
 - Sternohyal muscle of buccopharyngeal region is meant for lowers the floor resulting into inspiration.
27. a)
 - The two pelvic veins(branch of femoral vein) join to form median anterior abdominal vein.
28. b)
 - Diaphragm is characteristics feature of mammals that is absent in frog.
29. c)
 - Store house of malarial parasite/Grave yard of RBCs -Spleen.
30. b)
 - Larva dies due to surface tension effect on oil surface.
31. a)
32. a)
 - Digestion in Sponges is intracellular and holozoic.
33. a)
34. a)
 - Fasciola hepatica is also called sheep liver fluke.
 - Schistosoma is also called Blood fluke.
35. b)
 - Pineal setae(copulatory organ) is a part of male reproductive organs of ascaris which arise from cloaca of male.
36. a)
 - First appearance of heart was from phylum Annelids.
37. d)
 - Pheromones-Control normal growth
 - Thyroxine-Growth
 - Ecdysone-controlling ecdysis(Adult)
 - Juvenile-Moulting.
38. d)
 - Muscular diaphragm is distinguished character of mammals and separates thoracic cavity with abdominal cavity.
39. b)
 - Tropotaxis-Argulus(fish louse),Planaria
 - Telotaxis-Honey bee going for foraging in the morning.
 - Menotaxis-ant and honeybee
 - Mnemotaxis-Hunting wasps
40. b)
 - The reason for Secondary adaptation of aquatic animals: they had terrestrial ancestor but forced to return to water due stressful condition.

Botany

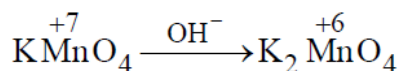
- 41. d)
- 42. d)
- 43. d) SER is crucial for the synthesis of lipids (including steroids and phospholipids), carbohydrates, and for detoxifying drugs and poisons in the liver
- 44. a)
- 45. a) The phospholipid bilayer is the fundamental structure of the cell membrane. Its arrangement, with hydrophobic fatty acid tails facing inward and hydrophilic heads facing outward, creates a barrier that is selectively permeable. Small, nonpolar molecules can pass through freely, while larger or charged molecules require transport proteins to cross the membrane.
- 46. a)
- 47. b) A cross between Bb × Bb results in offspring with a 3:1 phenotypic ratio, meaning 1/4 of the offspring will show the recessive trait (bb). Since each offspring's probability is independent, the second offspring has a 1/4 chance of exhibiting the recessive trait.
- 48. b) Incomplete dominance is an exception to Mendel's rules where heterozygous offspring exhibit a blend of parental traits (e.g., red and white flowers producing pink flowers), deviating from the typical dominant-recessive inheritance.
- 49. b) DNA has a double-helix structure where the two strands run antiparallel to each other—one strand runs in 5' → 3' direction, and the other in 3' → 5' direction.
- 50. a) The phenotype refers to the physical expression of an organism's genes, influenced by both the genetic makeup (genotype) and environmental factors.
- 51. b) The chromosomal theory of inheritance states that genetic material is carried on chromosomes, providing a structural basis for Mendel's observations and explaining gene transmission from parents to offspring.
- 52. d)
- 53. d) Syngamy is the fusion of two haploid gametes (sperm and egg) to form a single diploid zygote. This is the core event of sexual reproduction.
- 54. d)
- 55. c) orthotropous (straight), hemitropous (half-inverted), and circinotropous (coiled) ovules.
- 56. d)
- 57. c) Green manure refers to crops (such as sunhemp, dhaincha, clover, sesbania, alfalfa, etc.) that are grown specifically to be ploughed back into the soil while still green and tender. When incorporated into the soil, they decompose and enrich it with organic matter and nutrients (mainly nitrogen), improving soil fertility, aeration, water retention, and microbial activity.
- 58. b) vascular bundles are "closed," meaning they do not have a cambium layer between the xylem and phloem, preventing them from producing new vascular tissue and expanding in girth.
- 59. c) Hydathodes are specialized pores found at the tips or edges of leaves in some plants. Unlike stomata, they are not regulated by guard cells and remain open to allow for the release of water, a process known as guttation.

60. c)
61. b) Glyoxylate cycle occurs in glyoxysome.
62. d) high oxygen levels increase photorespiration, a process that competes with the Calvin cycle for the enzyme RuBisCO, thus reducing the efficiency of photosynthesis.
63. c) Cutting the top of a lawn grass removes the apical meristem, which produces a hormone (auxin) that inhibits the growth of lateral buds. By removing the apical meristem, the inhibitory signal is also removed, allowing the lateral buds to grow and leading to lateral growth and a denser, more uniform lawn.
64. b) Heliotropism(a form of phototropism) refers to the plant's movement towards sunlight, while photoperiodism is the response to day length, photonasty is a plant's response to light intensity change, and hydrotropism is the movement towards water.
65. d) Syngenesious anther are characteristic feature of the family Asteraceae (e.g., sunflowers).
66. b) Ephedra is a source of alkaloid ephedrine which has medicinal properties as a decongestant and bronchodilator
67. b)
68. a) Viruses are obligate intracellular parasites.
69. d) Diatoms and dinoflagellates are the most dominant and abundant types of phytoplankton. They are microscopic, single-celled algae that are the foundation of the marine food web and are responsible for a significant portion of the world's photosynthesis.
70. a) Late blight of potato is caused by *Phytophthora infestans*, an oomycete (fungus-like organism). It attacks potato leaves, stems, and tubers, leading to dark brown to black lesions, rapid decay, and significant crop losses (famously caused the Irish Potato Famine in the 1840s). Note: Early blight of potato is caused by *Alternaria solani* (@ A comes early than P)
71. b) Elaters are elongated, spiral-shaped cells found within the sporangium of some liverworts, such as *Marchanti*. They are a part of the sporogonium (the diploid sporophyte generation) and help in the dispersal of spores as they are released from the sporangium.
72. c) In the alternation of generations life cycle, spores are haploid cells produced by the sporophyte generation through meiosis. They germinate to form the gametophyte generation. Gametes, on the other hand, are haploid cells produced by the gametophyte generation, which fuse to form a diploid zygote.
73. c) While some bacteria are producers (chemosynthetic bacteria) or parasites, the vast majority of bacteria in an ecosystem function as decomposers.
74. d) A trimerous flower has its floral parts (sepals, petals, stamens, and/or carpels) arranged in multiples of three. This is a characteristic feature of monocots, which includes plants like garlic and onions.
75. a) The majority of a plant's dry weight is composed of carbohydrates(cellulose)
76. c) NO₂ & SO₂ react with water, oxygen, and other chemicals to form sulfuric acid (H₂SO₄) and nitric acid (HNO₃), which then fall to the ground as acid rain.
77. a)

78. a) Vivipary is the germination of seeds while still attached to the parent plant. This adaptation is common in halophytes, which are plants that grow in salty conditions (e.g., mangroves). In this environment, the seedlings would not be able to survive if they germinated in the salty water or soil, so they develop while still on the parent plant.
79. c) Habitat loss, caused by deforestation, urbanization, and agricultural expansion, removes the food, shelter, and breeding grounds that animals need to survive, leading to a decline in biodiversity
80. b) Helophytes are plants that live in marshy or swampy areas, where their roots are submerged in water or mud, but their aerial parts (stems and leaves) emerge above the water surface. Halophytes are plants adapted to salty environments, such as salt marshes or coastal areas with high salinity. Eremophytes are plants adapted to arid or desert environments. Pinophyta is a division of primitive vascular plants (pteridophyte)

Chemistry

81. d) 12Mg : $1s^2, 2s^2, 2p_x^2, 2p_y^2, 2p_z^2, 3s^2$
Eight electrons ($1s^2, 2s^2, 2p_z^2, 3s^2$) have $m = 0$.
82. c) James Chadwick discovered neutrons in 1932.
83. c) H_2O is non-linear.
84. a) AlF_3 is ionic compound.
85. b) a) in H_2PO_4 , O.N. of P = +5
b) in H_2PO_3 , O.N. of P = +3
c) in HPO_3 , O.N. of P = +5
d) in $\text{H}_4\text{P}_2\text{O}_7$, O.N. of P = +5.
86. b) $\text{K}_2\text{Cr}_2\text{O}_7 \xrightarrow{+6e^-}$
Reduction of 1 mol of $\text{K}_2\text{Cr}_2\text{O}_7$ needs charge = $6 \times 96500 \text{ C}$
Reduction of 0.4 mol of $\text{K}_2\text{Cr}_2\text{O}_7$ needs charge = $0.4 \times 6 \times 96500 \text{ C} = 2.4 \times 96500 \text{ C}$.
87. c) $\frac{1}{4} \frac{\Delta[\text{NO}_2]}{\Delta t}$
88. b) Since Al is more reactive than Cu, Cu^{2+} gets reduced.
89. a)



Change in oxidation number of Mn in basic medium is 1.

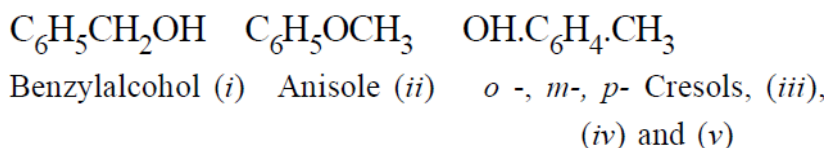
Hence mole of KI is equal to mole of KMnO_4 .

90. c) No. of molecules
Moles of $\text{CO}_2 = \frac{44}{44} = 1 \quad N_A$
Moles of $\text{O}_3 = \frac{48}{48} \quad N_A$

$$\text{Moles of H}_2 = \frac{8}{2} = 4 \quad 4N_A$$

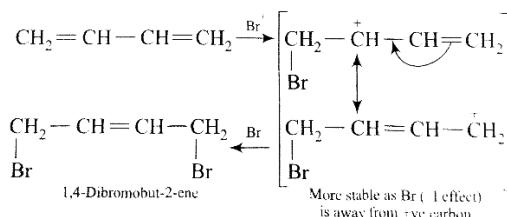
$$\text{Moles of SO}_2 = \frac{64}{64} = 1 \quad N_A$$

91. a) It is in the lowest energy level, it can absorb and not emit energy.
92. a) Since F has small size and its relatively compact 2 p-subshell's electron-electron repulsion, do not allow the addition of an extra electron whereas Cl has bigger size than F, allows the addition of an extra electron more easily.
93. c) H_2O_2 contains both polar and non-polar bonds.
94. b) $\frac{r_1}{r_2} = \sqrt{\frac{d_2}{d_1}} = \sqrt{\frac{16}{1}} = 4:1$
95. b) $\Delta H = \Delta E + P\Delta V$, for solid and liquid, $\Delta V = 0$
or $\Delta H = \Delta E + \Delta nRT$, for solids and liquids $\Delta n = 0$
96. b) Forward reaction is favoured by removal of products.
97. a) The weaker the conjugate acid, the stronger is the base and vice versa. HClO is a weak acid, hence ClO^- is a strong base.
98. d) It is basic.
99. a) $[\text{Fe}(\text{H}_2\text{O})_5\text{NO}] \text{SO}_4$. Let O.N. of Fe be x then, $1 \times (x) + 5 \times (0) + 1 \times (+1) + 1 \times (-2) = 0 \therefore x = +1$
100. c) The transport number of K^+ and Cl^- ions are nearly same or both have same ionic mobility.
101. a) Since rate is constant throughout. It is zero order.
102. a) Brownian movement is exhibited by colloidal system.
103. b) $N_1V_1 = N_2V_2 \therefore 400 \times \frac{1}{10} = 500 \times N$
 $\therefore N = 0.08 N$
104. d) Melting point of alkali metals decreases with increase in size.
105. b)
106. c) Tricalcium phosphate and calcium silicate is Thomas slag.
107. a) $\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$ (in blast furnace).
108. a) H_2O (due to intermolecular H - bonding).
109. c) Yellow ammonium sulphide is $(\text{NH}_4)_2\text{S}_x$
110. d)
111. d) Since Sc^{3+} does not contain any unpaired electron it is colourless in water.
112. c) Zn, Cd, Hg do not show properties of transition elements hence they are known as non-typical transition elements.
113. a) 2- amino-3- hydroxypropanoic acid
114. c) In the compound, all carbon atoms except CH_2 are sp^2 Hybridized.
115. d) Molecular formula $\text{C}_7\text{H}_8\text{O}$ points out the presence of one benzene ring (relatively less number of H atoms); so it can be $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ and its other isomers.

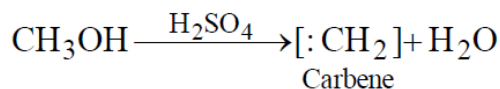


116. d) Longer the straight chain alkane, lower is the octane number. Thus, n-hexadecane has even lower octane number than n-heptane.

117. a) The intermediate 2° carbocation shows resonance.



118. a) When an alkyne, $\text{RC}\equiv\text{CH}$, is treated with cuprous ion in an ammoniacal medium, one of the products is $\text{RC}\equiv\text{CCu}$.
119. b) Mesitylene (1,3,5-trimethylbenzene) has three electron releasing ($-\text{CH}_3$) groups, while *m*-xylene, toluene and benzene have 2, 1 and 0 electron-releasing ($-\text{CH}_3$) groups
120. d) In presence of light, toluene undergoes bromination in side chain (free radical reaction). When toluene is refluxed with bromine in the presence of light, a free radical halogenation reaction occurs at the methyl group, resulting in the formation of benzyl bromide.
121. a)
122. b) Dehydration of CH_3OH gives carbene (methylene), an unstable intermediate.



123. c) Picric acid has three electron-withdrawing $-\text{NO}_2$ groups, so its phenolic group exhibits strong acidic character like that of $-\text{COOH}$.
124. b) Due to greater electronegativity of sp^2 -hybridized carbon atoms of the benzene ring, diaryl ethers are not attacked by nucleophiles like I^- .
125. a) Acetal is produced by reacting an alcohol with acetaldehyde in the presence of dry HCl . The reaction involves the formation of a hemiacetal, which then reacts with another molecule of alcohol to form the acetal. The dry HCl acts as an acid catalyst in this reaction.
126. b) Acetone oxime is obtained by reacting acetone with NH_2OH (hydroxylamine).
127. b) The reagent that reacts with nitromethane to form methyl hydroxylamine is $\text{Zn}/\text{NH}_4\text{Cl}$.
128. c) Ebonite is a hard highly vulcanized rubber, containing 20-30%, rubber.
129. c) $\text{HCONH}_2 + \text{aq. NaOH} \longrightarrow \text{HCOONa} + \text{NH}_3$
130. c) Galvanization is a method of protecting steel and iron from rusting by coating them with a thin layer of zinc. Even if the zinc coating is broken, the galvanized item is

protected against rusting. To avoid rusting, the iron pipes that carry water in our homes are galvanized.

Physics

131. a) Resultant $\vec{R} = \vec{p} + \vec{Q} + \vec{p} - \vec{Q} = 2\vec{p}$
The angle between $\vec{p}$ and $2\vec{p}$ is zero.
132. d) The separation between the two bodies, two seconds after the release of second body

$$= \frac{1}{2} \times 9.8 [(3)^2 - (2)^2] = 24.5\text{m}$$
133. c) $v_{\text{top}} = \sqrt{rg}$
134. d) $R = 4H \cot\theta$ if $\theta = 45^\circ$ then $R = 4H \cot(45^\circ) = 4H$
135. d) Momentum of the system is conserved in every collision.
136. c) The force of gravitation is conservative.
137. c) $F = YA\alpha\Delta\theta \therefore F \propto A$
138. b) A liquid does not wet the sides of a solid, if the angle of contact is Obtuse (More than 90°).
139. c) $P_1V_1 = P_2V_2 \Rightarrow (P_0 + h\rho g) \times \frac{4}{3}\pi r^3 = P_0 \times \frac{4}{3}\pi (2r)^3$
Where h = depth of lake

$$\Rightarrow h\rho g = 7P_0 \Rightarrow h = 7 \times \frac{H\rho g}{\rho g} = 7H$$
140. a) The height of water in the tank becomes maximum when the volume of water flowing into the tank per second becomes equal to the volume flowing out per second.
 Volume of water flowing out per second $= Av = A\sqrt{2gh}$ (i)
 Volume of water flowing in per second $= 70\text{cm}^3/\text{sec}$ (ii)
 From (i) and (ii) we get

$$A\sqrt{2gh} = 70 \Rightarrow 1 \times \sqrt{2gh} = 70$$

$$\Rightarrow 1 \times \sqrt{2 \times 980 \times h} = 70$$

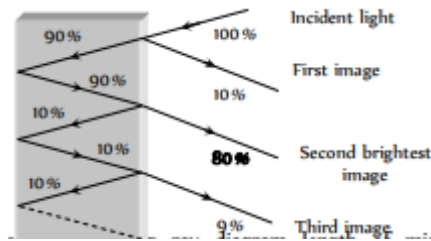
$$\therefore h = \frac{4900}{1960} = 2.5\text{cm}$$
141. a) When the ball is heated, expansion of ball and cavity both occurs, hence volume of cavity increases.
142. c) Stress $= Y\alpha\Delta\theta$; hence it is independent of length.
143. d) Due to large specific heat of water, it releases large heat with very small temperature change.
144. b) work adi $= \frac{R}{\gamma-1} (T_i - T_f) = \frac{R}{\gamma-1} (T_1 - T_2)$
145. b) In a refrigerator, the heat dissipated in the atmosphere is more than that taken from the cooling chamber, therefore, the room is heated if the door of refrigerator is kept open.

146. c) According to Newton's law of cooling
rate of cooling $\propto$ mean temperature difference

$$\frac{\text{fall in temp.}}{\text{time}} \propto \left(\frac{\theta_1 + \theta_2}{2} - \theta_0 \right)$$

$$\left(\frac{\theta_1 + \theta_2}{2} \right)_1 > \left(\frac{\theta_1 + \theta_2}{2} \right)_2 > \left(\frac{\theta_1 + \theta_2}{2} \right)_3 \Rightarrow T_1 < T_2 < T_3$$

147. b) Several images will be formed but second image will be brightest



148. d) To an observer on the earth the stars appear to twinkle. This can be described to the refractive index fluctuations in the earth's atmosphere.

149. b) Focal length for violet colour is minimum

150. d) $\delta = A (\mu - 1) = 10 (1.52 - 1) = 5.2^\circ$

151. d) If we use torch light in place of monochromatic light then overlapping of fringe pattern take place. Hence no fringe will appear.

152. a) $2\theta = \frac{2\lambda}{d}$ (where d = slit width)

As d decreases, θ increases

153. d) In all progressive waves (transverse or longitudinal), energy is transmitted.

154. c) $f = \frac{1}{2l} \sqrt{\frac{T}{\mu}}$

$$f \propto \sqrt{T} \quad \frac{f'}{f} = \sqrt{\frac{T'}{T}}$$

$$\frac{2f}{f} = \sqrt{\frac{T'}{4}} \quad T' = 16\text{kg}$$

155. c) The intensity of sound at night increases because of decrease in density.

156. b) A field line and an equipotential surface are always at 90° .

157. a) $W = qV = (CV)V = CV^2$

158. a) $Q = ne$

$$Q = 10^{19} \times 1.6 \times 10^{-19} = 1.6\text{C}$$

Since electrons are removed from a neutral metal plate, so it becomes +vely charged meal plate.

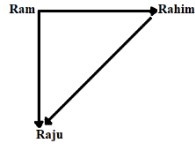
159. a) Ratio will be equal to the ratio of no deflection lengths i.e

$$\frac{E_1}{E_2} = \frac{l_1}{l_2} = \frac{2}{3}$$

160. c) $P_{\max} = \frac{E^2}{4r} = \frac{(2)^2}{4 \times 0.5} = 2W$
161. c) We know that $\frac{P_1}{P_2} = \frac{R_2}{R_1} = \frac{2}{1} \Rightarrow P = \frac{V^2}{R} = P \propto \frac{1}{R}$
162. a) $\pi = T \frac{dE}{d\theta} \quad \pi \propto T$
163. b) $B = \frac{\mu_0 i}{2\pi r}$ or $B \propto \frac{1}{r}$
164. b) On heating, different domains have net magnetisation in them which are randomly distributes. Thus the net magnetisation of the substance due to various domains decreases to minimum.
165. b) According to Faraday's law of electromagnetic induction the magnitude of induced e.m.f. produced in a coil is directly proportional to the rate of change of magnetic flux.
166. d) Time constant $= \frac{L}{R} = \frac{40}{8} = 5 \text{ sec}$
167. c) Effective voltage $V_{\text{rms}} = \frac{V_0}{\sqrt{2}} = \frac{423}{\sqrt{2}} = 300V$
168. b) The mass of moving electron increases with increase in velocity and thus, specific charge e/m decreases.
169. c) According to de-Broglie hypothesis.
170. a) The rest mass of the photon is 0.
171. c) $\lambda_{\min} = \frac{12375}{50 \times 10^3} \text{ \AA} = 0.247 = 0.25 \text{ \AA}$
172. a) Energy required to ionise helium atom = 24.6 eV
173. b) In 10 sec, number of nuclei has been reduced to one fourth (25% to 6.25%).
Therefore its mean life is $T = \frac{T_{1/2}}{0.693} = \frac{5}{0.693} = 7.21 \text{ sec}$
174. b) Ga has a valancy of 3.
175. b) In the forward bias arrangement of a PN-junction diode the P-end is connected to the positive terminal of the battery.
176. b) At a particular reverse voltage in PN-junction, a huge current flows in reverse direction known as avalanche current
177. b) Below 6V, Zener breakdown takes place.
178. b) Planet Venus is called Earth's sister.
179. a) Mesons are hadronic sub atomic particles composed of one quark and one anti quark, bound together by strong interactions.
180. c) If the average density of the universe were greater than the critical density, the universe would eventually stop expanding and begin contraction.

MAT

181. b)



182. c) Putting respective values of letters from examples given.
183. b) No. of students between Kumal Sonali = 19 $[37 - (7 + 9)]$ Kumal is 10th from Pukar.
184. c)
185. c) Time taken by man to go office (T) = 40 min
 Time taken to stop at one red light = 3 min
 Time takes to stop in 4 such red lights (t) = $3 \times 4 = 12$ min
 As, we know, we do not stop at the green light,
 Driving time only = $T - t = 40 - 12 = 28$ min
186. b) $+(1), +(1+2), +(1+2+3), +(1+2+3+4), +(1+2+3+4+5), \dots\dots\dots$
187. c) IC, F, I, L, O, ? $\Rightarrow C+3 \rightarrow F+3 \rightarrow I+3 \rightarrow L+3 \rightarrow O+3 \rightarrow R$
 IIZ,X,V,T,? $\Rightarrow Z-2 \rightarrow X-2 \rightarrow V-2 \rightarrow T-2 \rightarrow R$
188. d) $149+26=175, \quad 175+28=203, \quad 203+30=233$
189. c) $x^3+x:x+13+(x+1)$
190. c)
191. c) $A=123, B=182=36=\text{LCM}$
 $A+B$ 2 days = 5 unit
 $A+B$ in 14 days = $5 \times 7 = 35$ units
 Days = $14 + 13$ [1 unit work of A] = 1413
192. c) 20% reduction means 25% increase $14=312$
 original price of sugar per kg = $12012=10$
193. a) In 1st row, $26-11 \times 2 = 15 \times 2 = 30$.
 Similarly, $16-9 \times 2 = 7 \times 2 = 14$
194. c) $x\% \text{ of } y = y\% \text{ of } x$
195. d) $x:y:x = 12:13:15 = 15:10:6$
196. d) In one step, the existing element enlarges, and a new element appears inside this element. In the next step, the outer element is lost.
197. c) The trapezium gets vertically inverted and move to the middle right position; the pin rotates 90° CW and moves to the lower-right position; the third element rotates 135° ACW.
198. c)
199. a)
200. b)

===== Best of Luck =====