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BPKIHS Model Entrance Exam

2075

(Set-XXXI)

Date: 2075/04/19

Hints and Solutions

NAME

Solutions for BPKIHS Model Entrance Exam set -XXXI (2075-04-19)

Physics

1. a) $E = [ML^2T^{-2}] \quad V = [LT^{-1}] \Rightarrow \frac{E}{V^2} = M$

$S.T = [MT^{-2}] = \left[\frac{E}{V^2} T^{-2}\right] = [EV^{-2}T^{-2}]$

2. b) $t = \frac{d}{\frac{u}{2} \cos\theta}$

Drift $D = (u - \frac{u}{2} \sin\theta)t$

$= (u - \frac{u}{2} \sin\theta) \frac{d}{\frac{u}{2} \cos\theta}$

$= (2\sec\theta - \tan\theta)d$

For minimum drift $\frac{dD}{d\theta} = 0$

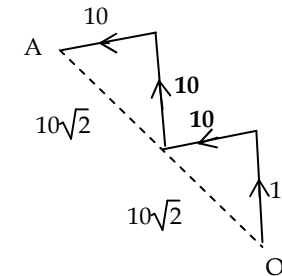
$\Rightarrow 2\sec\theta \tan\theta - \sec^2\theta = 0$

$\theta = 30^\circ$

required angle $= 90^\circ + \theta = 90^\circ + 30^\circ = 120^\circ$

3. c) $OA = 20\sqrt{2}$ steps

$= 20\sqrt{2} \times 0.8 = 16\sqrt{2}$ m



4. a) $S = ut + \frac{1}{2}at^2 \quad 24 = u \times 4 + \frac{1}{2}a \times 4^2$

$u + 2a = 6$ -----(1)

$64 + 24 = u \times 8 + \frac{1}{2}a \times 8^2$

$u + 4a = 11$ -----(2)

solving (1) & (2), $u = 1$ m/s

5. a) $h = \frac{u^2 \sin^2\theta}{2g}$, $h' = \frac{u^2 \sin^2\theta}{2 \times \frac{11}{10}g} = \frac{10}{11}h$ $h' = 91\%$ of h

\Rightarrow height decrease by 9%

$t = \frac{u \sin\theta}{g}$ $t' = \frac{u \sin\theta}{\frac{11}{10}g} = \frac{10}{11}t$ $t' = 91\%$ of t

\Rightarrow time of ascend decreases by 9%

6. a) Tension at a point = $\frac{\text{distance of that point from free end}}{\text{total length}} \times \text{applied horizontal force}$

$$T = \left(\frac{L-l}{L}\right)F$$

7. b) Because the system is in the state of weightlessness.

8. b) $e^{2n} = \frac{h_{\text{rise}}}{h_{\text{fall}}} \quad e^{2 \times 1} = \frac{h_{\text{rise}}}{h} \therefore h_{\text{rise}} = e^2 h$

9. c) $\vec{P}_1 + \vec{P}_2 + \vec{P}_3 = 0 \quad \vec{P}_1 = -(\vec{P}_2 + \vec{P}_3)$

$$mv = m\sqrt{V_1^2 + V_2^2} \Rightarrow V = \sqrt{9^2 + 12^2} = 15 \text{ m/s}$$

10. a) $\mu = (1 - \frac{1}{n^2})\tan\theta = [1 - \frac{1}{(\sqrt{2})^2}] \tan 45^\circ = \frac{1}{2} \times 1 = 0.5$

11. d) $\frac{K_{\text{disc}}}{K_{\text{ring}}} = \frac{\sqrt{\frac{3}{2}}R}{\sqrt{2}R} \quad MK_{\text{disc}}^2 = \frac{3}{2}MR^2$

$$= \sqrt{\frac{3}{2}} \times \frac{1}{2} \quad K_{\text{disc}} = \sqrt{\frac{3}{2}}R$$

$$= \frac{\sqrt{3}}{2} \quad MK_{\text{ring}}^2 = 2MR^2$$

$$K_{\text{ring}} = \sqrt{2}R$$

12. c) $V^2 = 2gh = 2gR \quad T - mg = \frac{mV^2}{R} = \frac{m}{R} \times 2gR \quad T = 3mg$

13. d) $L = mvr = m\sqrt{\frac{GM}{r}} \quad r = m\sqrt{GM}r \quad L \propto \sqrt{r}$

$$\frac{L'}{L} = \sqrt{\frac{16r}{r}} \quad L' = 4L$$

14. c) $P.E = \frac{1}{2} \times T.E \Rightarrow \frac{1}{2} m\omega^2 y^2 = \frac{1}{2} \times \frac{1}{2} m\omega^2 A^2 \quad y = \frac{A}{\sqrt{2}}$

15. a) $Y = \frac{3.6 \times 10^{-9} \text{ N/\AA}}{3 \times 10^{-10} \text{ m}} = \frac{3.6 \times 10^{-9} \times 10^{10} \text{ N/m}}{3 \times 10^{-10} \text{ m}} = 1.2 \times 10^{11} \text{ N/m}^2$

16. c)

17. d) $V\rho g = 0.6V\rho_0 g \text{ -----(1)}$

$$V\rho g = 0.4V\rho_l g \text{ -----(2)}$$

1 ÷ 2, we get

$$1 = \frac{0.6\rho_0}{0.4\rho_l} = \frac{6}{4} \times \frac{1}{\rho_l} \rho_l = \frac{6}{4} = 1.5$$

18. b)

19. b) $\gamma_r = \gamma_{ac} + \gamma_c = \gamma_{ac} + 3\alpha_c \text{ -----(1)}$

$$\gamma_r = \gamma_{as} + \gamma_s = \gamma_{as} + 3\alpha_s \text{ -----(2)}$$

From (1) & (2) $\gamma_{ac} + 3\alpha_c = \gamma_{as} + 3\alpha_s$

$$\Rightarrow 6 \times 10^{-6} + 3 \times 18 \times 10^{-6} = 24 \times 10^{-6} + 3\alpha_s$$

$$\Rightarrow 36 \times 10^{-6} = 3 \alpha_s \alpha_s = 12 \times 10^{-6} / ^\circ\text{C}$$

20. c) heat gained by A = heat lost by B

$$ms_1(16 - 2) = ms_2(19 - 16)$$

$$4s_1 = 3s_2 \text{ -----(1)}$$

Heat gained by B = heat lost by C

$$ms_2(23 - 19) = ms_3(28 - 23)$$

$$4s_2 = 5s_3 \text{ -----(2)}$$

From (1) and (2), $s_1 = \frac{3}{4}s_2 = \frac{3}{4} \times \frac{5}{4}s_3 = \frac{15}{16}s_3$

Heat gained by A = heat lost by C

$$ms_1(\theta - 12) = ms_3(28 - \theta) \quad \frac{15}{16}s_3(\theta - 12) = s_3(28 - \theta) \quad \theta = 20.2^\circ\text{C}$$

21. c) $C.O.P = \frac{1 - \eta}{\eta} = \frac{Q_2}{W} \Rightarrow \frac{1 - \frac{1}{10}}{\frac{1}{10}} = \frac{Q_2}{10} \quad Q_2 = 90J$

22. c) For oxygen $P_1V_1 = P_2V_2$ For nitrogen

$$\Rightarrow 1 \times 1 = P_2 \times 1 \quad P_1^1 V_1^1 = P_2^1 V_2^1$$

$$P_2 = 1 \text{ atm} \quad \Rightarrow 0.5 \times 2 = P_2^1 \times 1 \quad P_2^1 = 1 \text{ atm}$$

$$P = P_2 + P_2^1 = 1 + 1 = 2 \text{ atm}$$

23. a) $V = f_1 \lambda_1$

$$f_1 = \frac{V}{\lambda_1} \quad l = \lambda/2$$

$$= \frac{V}{2l} = \frac{330}{2 \times 25 \times 10^{-2}} = 660 \text{ Hz}$$

$$f_2 = 2f_1 = 2 \times 660 = 1320 \text{ Hz} \quad f_4 = 4f_1 = 4 \times 660 = 2640 \text{ Hz}$$

24. c) $E = \text{energy density} \times \text{volume} = \frac{1}{2} \rho \omega^2 A^2 s l$

$$E \propto \omega^2 \quad \omega_2 = 2\omega \& \omega_1 = \omega \quad E_2 = 4E_1$$

25. c) $\Delta l = l \alpha t \quad \text{strain} \frac{\Delta l}{l} = \alpha t \quad \text{stress} = Y \times \text{strain}$

$$\frac{T}{S} = Y \alpha t \quad V = \sqrt{\frac{T}{\rho s}} = \sqrt{\frac{Y \alpha s t}{\rho s}} = \sqrt{\frac{Y \alpha t}{\rho}}$$

$$T = Y \alpha t s$$

26. a) $I \propto \frac{1}{r^2} \frac{I_p}{I_Q} = \left(\frac{r_Q}{r_P}\right)^2 = \left(\frac{3}{2}\right)^2 = \frac{9}{4} = 9:4$

27. c) $\sin i_c = \frac{1}{\mu} = \frac{3}{5}, \tan i_c = \frac{3}{4}$

If x be the diameter of the disc, then

$$\tan i_c = \frac{3}{4} = \frac{x}{4} \therefore x = 3 \text{ m}$$

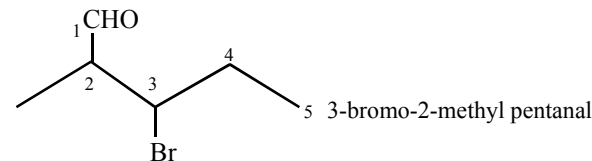
28. c) For dispersion without deviation

- $\delta_1 - \delta_2 = 0$ $\delta_1 = \delta_2$
 $(\mu_1 - 1)A_1 = (\mu_2 - 1)A_2$
 $(1.54 - 1)4^\circ = (1.72 - 1)A_2$ $A_2 = 3^\circ$
29. c) $I = Er^2 = (2.5 \times 10^5) \times (1.5 \times 10^{11})^2 = 5.625 \times 10^{27}$ candels
 Luminous flux $\phi = 4\pi I$
 $= 4 \times 3.14 \times (5.625 \times 10^{27}) = 7.065 \times 10^{28}$ lumen
30. d)
31. a) $8 \times \frac{4}{3} \pi r^3 = \frac{4}{3} \pi R^3 \therefore R = 2\text{mm}$
 $V = \frac{1}{4\pi\epsilon_0} \frac{Q}{R} = \frac{9 \times 10^9 \times 8 \times 0.066 \times 10^{-12}}{2 \times 10^{-3}} = 2.4\text{volt}$
32. a) $E_1 = \frac{1}{2} CV^2 = \frac{1}{2} \times 100 \times 10^{-6} (50)^2 = 125 \times 10^{-3}\text{J}$
 $d' = 2d$ $C' = \frac{\epsilon_0 A}{d'} = \frac{\epsilon_0 A}{2d}$ $C' = C/2 = 100/2 = 50\mu\text{F}$
 $E_2 = \frac{1}{2} C'V^2 = \frac{1}{2} \times 50 \times 10^{-6} \times (50)^2 = \frac{125 \times 10^{-3}}{2} \text{J}$
 Additional energy $E = E_1 - E_2 = \frac{125 \times 10^{-3}}{2} \text{J}$
33. c) Resistance of each piece = $R/20$
 Half of them are joined in series.
 $R_1 = \frac{R}{20} + \frac{R}{20} + \dots + 10 \text{ times} = R/2$
 Remaining half are joined in parallel
 $\frac{1}{R_2} = \frac{1}{R/20} + \frac{1}{R/20} + \dots + 10 \text{ times}$
 $\frac{1}{R_2} = \frac{200}{R}$ $R_2 = R/200$
 As R_1 and R_2 are joined in series, hence
 $R_{\text{eff}} = R_1 + R_2 = \frac{R}{2} + \frac{R}{200} = \frac{101R}{200}$
34. a)
35. c) $R_1 = \frac{V^2}{P_1}$ & $R_2 = \frac{V^2}{P_2}$ $R_s = R_1 + R_2$ $\frac{V^2}{P_s} = \frac{V^2}{P_1} + \frac{V^2}{P_2}$
 $P_s = \frac{P_1 P_2}{P_1 + P_2} = \frac{1000 \times 1000}{2000} = 500 \text{ watt}$
36. d) $B = \frac{\mu_0 I}{4\pi d} [\sin\theta - \sin\phi] = 0$
37. b)
38. d) $M' = \frac{2M \sin\theta/2}{\theta} = \frac{2M \sin\pi/6}{\pi/3} = 3M/\pi$
39. b) Induced emf in the ring opposes the motion of the magnet. Hence acceleration of the falling magnet is less than g .
40. a) $e = NBA\omega$ $e \propto \omega$
41. c) $E_0 = \sqrt{2} E_V = \sqrt{2} \times 220 = 311\text{volt}$

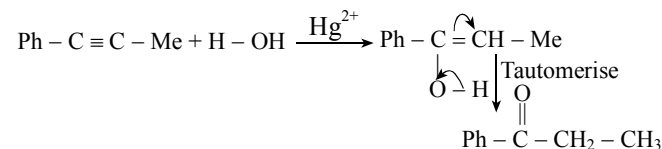
42. d) For resonance $\omega L = \frac{1}{\omega C}$ $Z = \sqrt{R^2 + (\omega L - \frac{1}{\omega C})^2} = R$
43. d) $T = \frac{2\pi m}{qB}$
44. c) $W_0 = \frac{hC}{\lambda_0} \frac{W_{0_1}}{W_{0_2}} = \frac{\lambda_{0_2}}{\lambda_{0_1}} = 2/1$
45. d)
46. d)
47. b) When β -particle is emitted, the number of protons increases by 1 and that of neutrons decreases. So, neutron -proton ratio gets decreased.
48. b)
49. c)
50. b)
- Chemistry
51. b) \wedge_m and \wedge_{eq} are equal for KCl.
52. c) For a given increase in temperature, the per cent increase in the rate of reaction is more in case of reaction having higher activation energy.
53. c) $t_{3/4} = 2(t_{1/2}) = \frac{2 \times 0.693}{k} = \frac{1.386}{k}$
54. b) Mass of oxygen which gets displaced from metal oxide = 0.4g
 Now, 0.4 g of oxygen combines with metal = 3.2g
 8 g of oxygen combines with metal = $\frac{3.2}{0.4} \times 8 = 64\text{g}$
 \therefore GEW of metal = 64 g
 Valency of metal = $\frac{GAM}{GEW} = \frac{64\text{g}}{64\text{g}} = 1$.
55. a) Moles of solute = 1; Moles of solvent = $\frac{1000}{18} = 55.5$
 Mole fraction of solute = $\frac{1}{56.5} = 0.0176$.
56. b) Since the radius ratio is in the range 0.414 - 0.732, the cation A^+ would prefer to be in octahedral void and hence the compound AB is likely to have rock salt structure.
57. c) $m = \frac{0.15 \times 1000}{M \times 15}$
 $\Delta T_b = K_b \times m = \frac{K_b \times 0.15 \times 1000}{M \times 15}$ or $M = \frac{2.16 \times 0.15 \times 1000}{0.216 \times 15} = 100$
58. a) Volume of 100g of solution = $\frac{100}{d}$ ml. $\therefore M = \frac{20 \times d \times 1000}{100 \times 98}$
 or $d = \frac{2.25 \times 100 \times 98}{20 \times 1000} = 1.249 \approx 1.25$.
59. a) Here 0.2 mole of NaOH is limiting reagent
 \therefore Neutralisation of 1 mole of NaOH release heat = 57.0 kJ
 Neutralisation of 0.2 mole of NaOH release heat = $57.0 \times 0.2 = 11.4 \text{ kJ}$.

60. d) Zeolite when treated with hard water exchange Ca^{2+} and Mg^{2+} ions (present in hard water) with Na^+ ions.
61. a) Organometallic compounds are those which have at least one M-C bond. In cisplatin there is no M-C bond, so that it is not an organometallic compound. $(\text{NH}_3)_2\text{PtCl}_2$ is cisplatin
62. c) Six as shown below; $[\text{Mg}(\text{H}_2\text{O})_6]\text{SO}_4 \cdot \text{H}_2\text{O}$.
63. d) Graphite has a layer structure in which each carbon is bonded to three other carbon atoms to form hexagonal sheets. The hexagonal layers are held together by weak van der Waals forces. So, graphite is a soft and slippery substance with excellent lubricating properties.
64. c) $\text{B}_2\text{H}_6 + 6\text{H}_2\text{O} \rightarrow 2\text{H}_3\text{BO}_3 + 6\text{H}_2$
Orthoboric acid
65. c) The reaction of NaNO_3 and HCl do not give NO .
66. a) $\text{O}_3 \rightarrow \text{O}_2 + \text{O}$
 $2\text{KI} + \text{H}_2\text{O} + \text{O} \rightarrow 2\text{KOH} + \text{I}_2$
 $2\text{KI} + \text{H}_2\text{O} + \text{O}_3 \rightarrow \text{O}_2 + 2\text{KOH} + \text{I}_2$
67. c) Cobalt (II) chloride has a blue colour in tetrahedral geometry. It changes to pink in colour with the change in coordination number to six.
68. c) Due to lanthanide contraction, Zr and Hf have about the same atomic radius.
69. a) Primary valency of a metal ion is always satisfied by a negative ion.
70. b) apply, $\Delta G^\circ = -2.303 RT \log K$
71. d) above which it always exists as gas
72. b) Emission of β -particle decreases N/P ratio.
73. b) Less
74. c) The impact of molecules of the dispersion medium on the colloidal particles
75. d) The number of possible orientations is $(2l + 1) = (2 \times 3 + 1) = 7$.
76. c) Hund's rule is violated because the three electrons in 2p-sub-shell do not have parallel spin.
77. a) The molecule AB_3 must be trigonal planar for $\mu = 0$. Hence, its hybrid state is sp^2 .
78. a) Among the given, oxygen has second ionization energy.
79. c) $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$; $E^\circ = 0.34 \text{ V}$
 $E = 0.34 + \frac{0.059}{2} \log [\text{Cu}^{2+}]$
Or, $E = 0.34 - (0.0296) (9) = 0.34 - 0.266 = 0.07 \text{ V}$.
80. a) CaOCl_2 contains Ca^{2+} , OCl^- and Cl^- . Cl has O.N. = -1 in Cl^- while its O.N. in OCl^- part is +1.
81. c) $K_{\text{sp}} = \text{S}^2$, $\text{S} = \sqrt{K_{\text{sp}}} = \sqrt{10^{-2}} = 10^{-1} \text{ mol L}^{-1} = 10 \text{ g L}^{-1}$
82. c) $2\text{SO}_3 \rightleftharpoons 2\text{SO}_2 + \text{O}_2$
 $1 - 0.6 = 0.4$ 0.6 0.3
 $K = \frac{[\text{SO}_2]^2[\text{O}_2]}{[\text{SO}_3]^2} = \frac{(0.6)^2(0.3)}{(0.4)^2} = 0.68$.

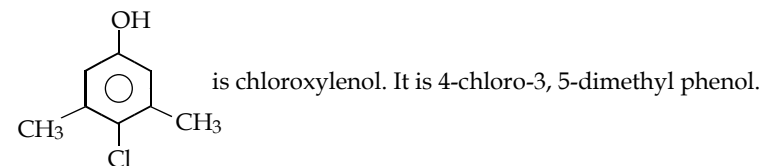
83. c) Percent ionization increases with decrease in concentration (Ostwald's dilution Law).
84. d) Cl^- is the conjugate base of a strongest acid (HCl). Among the given choices Cl^- is the conjugate base of the strongest acid. Acid strength is the order $\text{HCl} > \text{CH}_3\text{OH} > \text{CH}_4 > \text{H}_2$.
85. d) Neutron/proton ratio does not reflect periodic properties.
86. d)



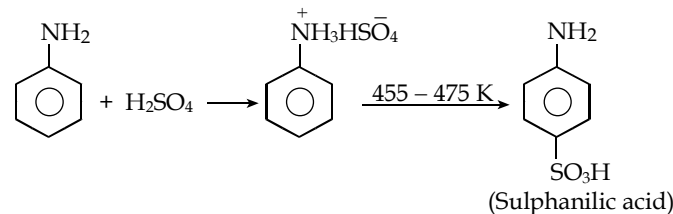
87. b) Greater the number of covalent bond more is the stability and negative charge on more electronegative element is more stable than that on less electronegative element.
88. a) Thiourea (NH_2CSNH_2) contains both N & S and hence gives blood red colour in Lassaigne's test.
89. d) Shortening of bond length in alkene is due to hyperconjugation.
90. b)



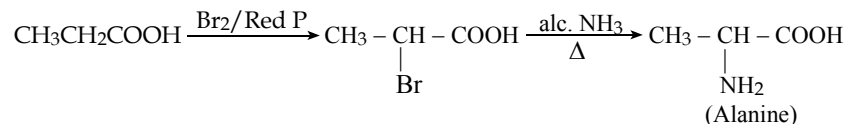
91. d)
92. a)



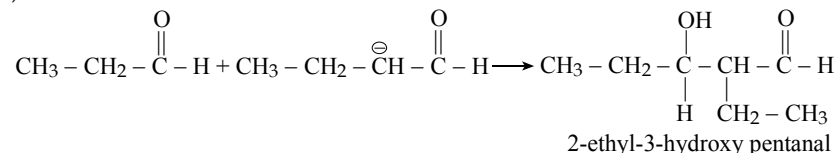
93. c) Teflon is the homopolymer of tetrafluoroethylene, styron is the homopolymer of styrene and neoprene from chloroprene.
94. d)



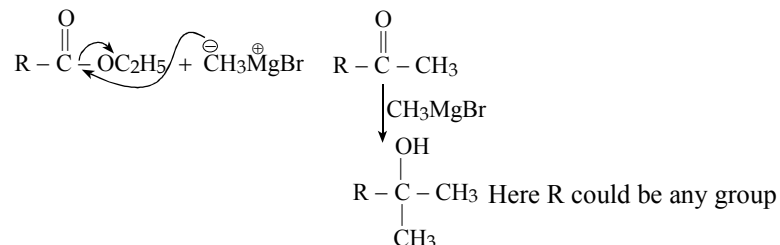
95. c)



96. c)



97. a)



98. d) Ditertbutyl ether and diphenyl ether cannot be prepared by Williamson's synthesis.

99. b) CH_3COO^- being a weaker base undergoes substitution while $\text{CH}_3\text{CH}_2\text{O}^-$ being stronger base undergoes elimination.

100. a) As the number of halogen atom increases symmetry tends to increase and hence the dipole moment decreases.

Botany

101. a) The interferon are the antiviral protein produced by cells against specific viral infection.

102. a) The loss or change in gene pool due to natural calamities is called genetic drift. It is severe and more pronounce in small and localised population.

103. c) Facultative anaerobe are normal aerobe which may become anaerobe in absence of oxygen.

104. a) The primary acceptor of CO_2 to fix malic acid or oxaloacetic acid in CAM plants are PEP in presence of PEP carboxylase during night time. During day time secondary CO_2 acceptor is RuBP in presence of enzyme RuBP carboxylase.

105. c) The Germ theory of disease was proposed by Louis Pasteur and explained by Robert Koch.

106. a) The respiratory quotient (RQ) is the ratio between evolved CO_2 and consumed O_2 during respiration. It depends on respiratory substrates. It becomes unit for potato where storage material is starch.

107. c) Richmond-Lang effect is inhibition of destruction of chloroplast. The cytokinin (kinetin) retains the integrity of chloroplast and maintains the colour of chloroplast

108. b) If the baby has blood group O, then their parent should be either O, A, or B. One parent should not bear blood group AB which has no allele for O group.

109. c) According to Chargaff rule, the molecular amount of Adenine equals with Thymine and Cytosine equal with Guanine, i.e. $A = T$ and $G = C$.110. a) During photorespiration, O_2 is taken by chloroplast and CO_2 is released from mitochondria.

111. c) The germination of seed needs metabolic energy which is supplied by respiration. During respiration, more than half energy is lost in the form of heat energy.

112. d) The number of zygote from given genotype depends on the number of alleles having contrasting traits. It can be calculated by $2n \times 2n = 16$.

113. d) Number of pure homozygous offspring (either AABB or aabb) from dihybrid cross is two out of sixteen.

114. b) The identical twins are produced from single zygote of single male gamete and single female gamete.

115. d) The marker enzyme only present in mitochondrial inner membrane is succinate dehydrogenase which takes part in Krebs cycle of matrix.

116. c) Rocella tinctoria, a lichen is the major source of orcin dye which is used to produce litmus paper.

117. d) Turner syndrome is sex linked aneuploid in which the bearer has $22A+XO$ (absence of X from female). Patau, Down and Edward syndromes are trisomy which bear additional chromosome number 13rd, 21st and 18th respectively.

118. a) In alcohol fermentation, ethanol is produced as end product from glucose molecule. It does not require oxygen.

119. d) The main elements of cell are CHONPK which occupies more than 96% by volume.

120. b) In C_4 cycle like sugarcane, the atmospheric CO_2 acceptor is Phosphoenol pyruvic acid (PEP) in presence of PEP carboxylase and produce Oxaloacetic acid or malic acid (4C).

121. c) Sequences of layers present in dicot stem is: Cuticle, Epidermis, Hypodermis, General cortex, Endodermis, Pericycle, Medullary rays, Vascular bundles (phloem, cambium, xylem) and Pith from outer side to inner side. After secondary growth phellem remain outer side of endodermis.

122. d) The seed bears 2 generations: embryo (as future sporophyte) and testa (as female sporophytic element).

123. a) Sarcoplasmic reticulum is smooth endoplasmic reticulum (SER) which does not contain ribosomes.

124. b) Vernalization is low temperature treatment used to break dormancy of seed or to induce flowering in plants.

125. a) The phase of division of chromosomes occurs during Anaphase I of meiosis I.

Zoology

126. b) Dentine is the bony material that forms the bulk of a tooth. Dentine is similar in composition to bone but is perforated with many tiny canals for nerve fibres, blood capillaries and processes of the dentine forming cells (odontoblasts). Ivory, the material that forms elephant tusks is made of dentine.
127. a) Hypertension is a term that refers to an elevation of blood pressure (arterial blood pressure).
128. c) Amylase (calcium dependent enzyme) is a digestive enzyme classified as a saccharidase (an enzyme that cleaves polysaccharides). It is mainly a constituent of pancreatic juice and saliva, needed for the breakdown of long chain carbohydrates (such as starch) into smaller units. It hydrolyzes complex carbohydrates at alpha 1, 4-linkage to form maltose and glucose.
129. c) Antioxidants are those substance that prevents or reduce damage caused by reactive oxygen species (ROS) or reactive nitrogen species (RNS). ROS and RNS are highly reactive chemicals that attack other molecules and modify their chemical structure. Antioxidants are important in food preservation and is used in the formulation of paints and plastics. Natural antioxidants such as vitamin E and beta-carotene, may reduce damage to living cells caused by toxins.
130. c) Dinosaurs were present during the mesozoic era.
131. a) Darwinism is the term coined for the explanation offered by Darwin for the origin of species by Natural selection. Theory of natural selection is a theory of organic evolution which states that new species evolve over a long period of time through accumulation of small variations which provide the organism with structural and functional superiority over other in their survival and differential reproduction.
132. b) Odontoid process is a tooth like process at the back of 2nd vertebra of the neck. Atlas is the first cervical vertebra, which is a ring like bone that joints the skull to the vertebral column. Condyle is a smooth round knob of bone that fits into a socket on an adjoining bone forming a joint.
133. c) Coronoid fossa present on distal and anterior part of humerus.
134. c) The mandibular nerve (V₃) is the largest of the three branches of the trigeminal nerve. The mandibular nerve is the third and inferiormost division of the trigeminal nerve or the fifth cranial nerve. The trigeminal nerve is predominantly a sensory nerve, innervating most of the face.
135. b) *Metridium* is a solitary marine sea anemones. In sea anemone, the body has biradial symmetry. Body is clearly divisible into three region-oral disc, pedal disc and column. In *Metridium*, medusa stage is totally absent. Thus, life cycle of *Metridium* is simple and does not show an alternation of generation.
136. b) *Trichinella* belongs to nematodes. The other three are deuterostomian.
137. a) Glomerular filtration rate (GFR) is the volume of fluid filtered from the renal glomerular capillaries into Bowman's capsule per unit time. Clinically, this is often measured to determine renal function.

138. a) Creatine phosphate is a high energy compound found in muscle cells which is used to convert ADP into ATP by donating phosphate molecules to the ADP. ATP is the molecule which is converted into ADP with a release of energy that the body then uses.
139. b) Parotid gland is the largest of the salivary glands. It is found in the subcutaneous tissue of the face, overlying the mandibular ramus and anterior and inferior to the external ear. The duct to this gland (also known as Stensen's duct) empties within the buccal cavity (the inside of the cheek) opposite the upper second molar.
140. d) During prenatal development the first side of haemotopotesis in the yolk sac. The site is replaced by liver (during the second month) and subsequently the bone marrow, which begins to function in the second month and became the predominant haemotopietic site during months 5 to 9 of gestation.
141. d) In male platypus a grooved erectile prism spine is present on the tarsus which is secreted by poison gland in thigh. The poison is used to immobilize a female during certian.
142. c) Cat fishes very small eyes and well developed sensory barbels by which they make a good vision and find their way.
143. d) Haemezoin is an insoluble digestion product of malarial parasite produced from haemoglobin.
144. a) The common excretory canal opens by a minute ventral excretory pore just behind the lips in both sexes of *Ascaris*.
145. d) Earthworm is saprozoic as it feeds upon all sorts of organic humus such as decaying matter in the soil.
146. d) During the first 2 months of pregnancy, estrogen and progesteron production is primarily the responsibility of the corpus luetum. The produced by the placenta during the remainder of the pregnancy.
147. c) An orienting mechanism which helps the animal to maintain a constant direction by steering a course of constant angle to the incidence of the stimulus.
148. c) Echography also known as ultrasonography, is the process of imaging deep structure of the body by measuring and recording the reflection of pulsed or continuous high frequency sound wave.
149. a) IgA is the predominant immunoglobulin in external secretion such as breast milk, saliva, tears and mucus of bronchial, genitourinary and digestive tract.
150. a) According to immunity theory (Pacemaker theory) there is progressive breakdown in the immunological system with increasing age.

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151.c	152.a	153.a	154.b	155.c	156.b	157.a	158.d	159.d	160.b
161.d	162.c	163.a	164.d	165.c	166.c	167.b	168.d	169.c	170.d
171.c	172.c	173.d	174.a	175.b	176.b	177.a	178.c	179.b	180.a
181.a	182.a	183.a	184.a	185.b	186.c	187.d	188.b	189.c	190.a
191.c	192.b	193.d	194.b	195.b	196.a	197.c	198.a	199.a	200.b

Result will be published on Sunday

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==== Best of Luck ====