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**Max Marks: 800** **Date: 06.11.2022**

# ANKUR BATCH
## PHYSICS : REVISION TEST – 1 (SET A)
## Topic: Ray Optics + Circular Motion + Gravitation

1. When light is refracted from a surface, which of its following physical parameters does not change?
   (a) Velocity (b) Amplitude (c) Frequency (d) Wavelength

2. A concave mirror gives an image three times as large as its object placed at a distance of 20 cm from it. For the image to be real, the focal length should be
   (a) 10 cm (b) 15 cm (c) 20 cm (d) 30 cm

3. A man stands symmetrically between two large plane mirrors fixed to two adjacent walls of a rectangular room. The number of images formed are
   (a) 4 (b) 3 (c) 2 (d) 6

4. A concave mirror has a focal length of 5 cm. When an object is placed at a distance of 15 cm from the mirror, where is the image formed?
   (a) 10 cm in front of the mirror. (b) 7.5 cm behind the mirror.
   (c) 2.5 cm in front of the mirror. (d) 7.5 cm in front 0 f the mirror

5. A ray of light is incident on a plane mirror at an angle of 60°. The angle of deviation produced by the mirror is
   (a) 120º (b) 30º (c) 60º (d) 90º

6. Consider a ray of light travelling from a denser to a rarer medium. If it is incident at the critical angle then
   (a) it will emerge out into the rarer medium
   (b) it will undergo total internal reflection
   (c) it will travel along the interface separating the two media
   (d) it will retrace its path

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**Space for Rough Work**

7. What is the refractive index of the material if the critical angle is 45°?

(a) 0.414 (b) 0.301 (c) 0.101 (d) 1.414

8. The image of an object in concave lens is formed at $\frac{f}{2}$, where f is the focal length of the lens. Find the distance of the object from the lens

(a) f (b) 2f (c) $\frac{f}{2}$ (d) infinity

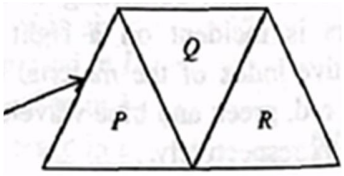
9. An object placed at a distance of 16 cm from a convex lens produces an image of magnification m (m>1). If the object is moved towards the lens by 8 cm then again an image of magnification m is obtained. The numerical value of the focal length of the lens is

(a) 12 cm (b) 14 cm (c) 18 cm (d) 20 cm

10. In an equilateral prism if incident angle is 45° then the angle of minimum deviation is

(a) 30º (b) 60º (c) 45º (d) 90º

11. A ray of light suffers minimum deviation in equilateral prism P. Additional prisms Q and R of identical shape and of same material as that of P are now combined as shown in figure. The ray will now suffer




(a) greater deviation (b) no deviation

(c) same deviation as before (d) total internal reflection

12. Focal length of objective and eye piece of telescope are 200 cm and 4 cm respectively. What is the length of telescope for normal adjustment?

(a) 196 cm (b) 204 cm (c) 250 cm (d) 225 cm

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**Space for Rough Work**

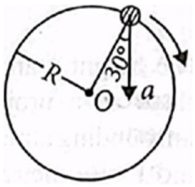
13. The magnifying power of a convex lens of focal length 10 cm when the image is formed at the near point is

(a) 6 (b) 5.5 (c) 4 (d) 3.5

14. If the focal length of the eye piece of a telescope is doubled, its magnifying power (m) will be

(a) 2m (b) 3m (c) $\frac{m}{2}$ (d) 4m

15. In the given figure, a = 15 m $s^{-2}$ represents the total acceleration of a particle moving in the clockwise direction in a circle of radius R = 2.5 m at a given instant of time. The speed of the particle is




(a) 4.5 m $s^{-1}$ (b) 5.0 m $s^{-1}$ (c) 5.7 m $s^{-1}$ (d) 6.2 m $s^{-1}$

16. A particle moves with a uniform speed v and time period T in a circular path of radius r. If the speed of the particle is doubled, its new time period is

(a) T (b) $\frac{T}{2}$ (c) 2T (d) $\frac{T}{4}$

17. The radii of circular paths of two particles of same mass are in ratio 6 : 8 then what will be velocities ratio if they have a constant centripetal force?

(a) $\sqrt{3}:4$ (b) $4:\sqrt{3}$ (c) $2:\sqrt{3}$ (d) $\sqrt{3}:2$

18. The ratio of angular speed of a second-hand to the hour-hand of a watch is

(a) 60 : 1 (b) 72 : 1 (c) 720 : 1 (d) 3600 : 1

19. If the length of second's hand of a clock is 10 cm, the speed of its tip (in cm $s^{-1}$) is nearly

(a) 2 (b) 0.5 (c) 1.5 (d) 1

**Space for Rough Work**

20. Uniform circular motion is an example of

(a) constant speed motion (b) constant velocity motion

(c) non-accelerated motion (d) zero accelerated motion

21. A particle is moving with a uniform speed v in a circular path of radius r with the centre at O. When the particle moves from a point P to Q on the circle such that $\angle POQ = \theta$, then the magnitude of the change in velocity is

(a) $2v \sin(2\theta)$ (b) zero (c) $2v\sin\left(\frac{\theta}{2}\right)$ (d) $2v\cos\left(\frac{\theta}{2}\right)$

22. A particle moves in a circle of radius 5 cm with constant speed and time period $0.2\pi$ s. The acceleration of the particle is

(a) 15 $m/s^2$ (b) 25 $m/s^2$ (c) 36 $m/s^2$ (d) 5 $m/s^2$

23. A car is moving along a circular road at speed of 20 m/s. The radius of the circular road is 10 m. If the speed is increased at the rate of 30 $m/s^2$, what is the resultant acceleration?

(a) 10 $m/s^2$ (b) 50 $m/s^2$ (c) 250 $m/s^2$ (d) 80 $m/s^2$

24. A particle moves in a circle of radius 25 cm at two revolutions per second. The acceleration of the particle in $m/s^2$ is

(a) $\pi^2$ (b) $8\pi^2$ (c) $4\pi^2$ (d) $2\pi^2$

25. A body moving along a circular path of radius r with velocity v, has centripetal acceleration a. If its velocity is made equal to 2v, then its centripetal acceleration is

(a) 4a (b) 2a (c) a/4 (d) a/2

26. For a particle moving in vertical circle, the total energy at different positions along the path

(a) is conserved (b) increases

(c) decrease (d) may increase or decrease

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**Space for Rough Work**

27. What is the minimum velocity with which a body of mass m must enter a vertical loop of radius R so that it can complete the loop?

(a) $\sqrt{3gR}$ (b) $\sqrt{5gR}$ (c) $\sqrt{gR}$ (d) $\sqrt{2gR}$

28. A stone is fastened to one end of a string and is whirled in a vertical circle of radius R. Find the minimum speed the stone can have at the highest point of the circle.

(a) $\sqrt{2Rg}$ (b) $\sqrt{2R/g}$ (c) $\sqrt{R/g}$ (d) $\sqrt{Rg}$

29. A can filled with water is revolved in a vertical circle of radius 4 m and the water does not fall down. The time of period of revolution will be

(a) 4 s (b) 2 s (c) 1 s (d) 6 s

30. The velocity of a body moving in a vertical circle of radius r is $\sqrt{7gr}$ at the lowest point of the circle. What is the ratio of maximum and minimum tension?

(a) 4 : 1 (b) $\sqrt{7}$ :1 (c) 3 : 1 (d) 2 : 1

31. Kepler's second law is a consequence of

(a) conservation of energy (b) conservation of linear momentum
(c) conservation of angular momentum (d) conservation of mass

32. Average distance of the earth from the sun is $L_1$. If one year of the earth = D days, one year of another planet whose average distance from the sun is $L_2$ will be

(a) $D\left(\frac{L_2}{L_1}\right)^{1/2}$ days (b) $D\left(\frac{L_2}{L_1}\right)^{3/2}$ days (c) $D\left(\frac{L_2}{L_1}\right)^{2/3}$ days (d) $D\left(\frac{L_2}{L_1}\right)$ days

33. A small planet is revolving around a very massive star in a circular orbit of radius R with a period of revolution T. If the gravitational force between the planet and the star were proportional to $R^{-5/2}$, then T would be proportional to

(a) $R^{3/2}$ (b) $R^{3/5}$ (c) $R^{7/2}$ (d) $R^{7/4}$

**Space for Rough Work**

34. Three equal masses of 1 kg each are placed at the vertices of an equilateral triangle PQR and a mass of 2 kg is placed at the centroid O of the triangle which is at a distance of $\sqrt{2}$ m from each of the vertices of the triangle. The force, in newton, acting on the mass of 2 kg is

(a) 2 (b) $\sqrt{2}$ (c) 1 (d) Zero

35. If the mass of a body is M on the surface of the earth, the mass of the same body on the surface of the moon is

(a) M (b) zero (c) $\frac{M}{6}$ (d) 6M

36. If earth suddenly shrinks by one-third of its present radius, the acceleration due to gravity will be

(a) $\frac{2}{3}g$ (b) $\frac{3}{2}g$ (c) $\frac{4}{9}g$ (d) $\frac{9}{4}g$

37. The depth d at which the value of acceleration due to gravity become $\frac{1}{n}$ times the value at the earth's surface is (R = radius of earth)

(a) $d = R\left(\frac{n}{n-1}\right)$ (b) $d = R\left(\frac{n-1}{2n}\right)$ (c) $d = R\left(\frac{n-1}{n}\right)$ (d) $d = R^2\left(\frac{n-1}{n}\right)$

38. The change in the gravitational potential energy when a body of mass m is raised to a height nR above the surface of the earth is (here R is the radius of the earth)

(a) $\left(\frac{n}{n+1}\right)mgR$ (b) $\left(\frac{n}{n-1}\right)mgR$ (c) nmgR (d) $\frac{mgR}{n}$

39. The ratio of escape velocity at earth $v_e$ to the escape velocity at a planet $v_p$ whose radius and mean density are twice as that of earth is

(a) 1 : 4 (b) $1:\sqrt{2}$ (c) 1 : 2 (d) $1:2\sqrt{2}$

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**Space for Rough Work**

40. A particle of mass m is kept at rest at a height 3R from the surface of earth, where R is radius of earth and M is mass of earth. The minimum speed with which it should be projected, so that it does not return back, is (g is acceleration due to gravity on the surface of earth)

(a) $\left(\frac{GM}{2R}\right)^{1/2}$ (b) $\left(\frac{gR}{4}\right)^{1/2}$ (c) $\left(\frac{2g}{R}\right)^{1/2}$ (d) $\left(\frac{GM}{R}\right)^{1/2}$

41. A satellite is orbiting the earth at a height of 5 R above that surface of the earth, R being the radius of the earth. The time period of another satellite in hours at a height of 2R from the surface of the earth is

(a) 5 (b) 10 (c) $6\sqrt{2}$ (d) $\frac{6}{\sqrt{2}}$

42. The time period of a satellite of earth is 5 hours. If the separation between the earth and the satellite is increased to 4 times the previous value, the new time period will become

(a) 20 hours (b) 40 hours (c) 80 hours (d) 5 hours

43. A satellite is orbiting around the earth at a height h above the earth's surface. If h is increased, the time period of satellite will

(a) decrease (b) increase (c) remain unaffected (d) become zero

44. The time period T of the moon of planet Mars (mass $M_m$) is related to its orbital radius R (G = Gravitational constant) as

(a) $T^2 = \frac{4\pi^2 R^3}{GM_m}$ (b) $T^2 = \frac{4\pi^2 GR^3}{M_m}$ (c) $T^2 = \frac{2\pi R^3 G}{M_m}$ (d) $T^2 = 4\pi M_m GR^3$

45. A satellite is in an orbit around the earth. If its kinetic energy is doubled, then

(a) it will maintain its path

(b) it will fall on the earth

(c) it will rotate with a great speed

(d) it will escape out of earth's gravitational field.

**Space for Rough Work**

46. Which of the following relation is called mirror equation?

(a) $\frac{u}{v}+\frac{f}{u}=\frac{1}{f}$ (b) $\frac{1}{v}+\frac{1}{u}=1$ (c) $\frac{1}{f}+u=\frac{1}{v}$ (d) uf + vf = uv

47. A rod of length 10 cm lies along the principal axis of a concave mirror of focal length 10 cm in such a way that its end closer to the pole is 20 cm away from the mirror. The length of the image is

(a) 10 cm (b) 15 cm (c) 2.5 cm (d) 5 cm

48. A train has to negotiate a curve of radius 800 m. By how much height should the outer rail be raised with respect to inner rail for a speed of 96 $kmh^{-1}$? The distance between the rails is 1 m

(a) 4.4 cm (b) 9 cm (c) 8.8 cm (d) 3.3 cm

49. A mass M at rest is broken into two pieces having masses m and (M – m). The two masses are then separated by a distance r. The gravitational force between them will be the maximum when the ratio of the masses [m : (M – m)] of the two parts is

(a) 1 : 1 (b) 1 : 2 (c) 1 : 3 (d) 1 : 4

50. A spherical planet has a mass $M_p$ and diameter $D_p$. A particle of mass m falling freely near the surface of this planet will experience an acceleration due to gravity, equal to

(a) $\frac{4GM_p}{D_p^2}$ (b) $\frac{GM_pm}{D_p^2}$ (c) $\frac{GM_p}{D_p^2}$ (d) $\frac{4GM_pm}{D_p^2}$

**Space for Rough Work**

**Date: 06.11.2022**

# ANKUR BATCH
# CHEMISTRY : REVISION TEST-1 (SET A)
## Topic: Mole Concept + Redox Reaction + Periodic Properties + S Block + Hydrogen

51. The number of neutrons in a drop of water (20 drops= 1 mL) at 4°C

(a) $6.023 \times 10^{22}$ (b) $1.338 \times 10^{22}$ (c) $6.023 \times 10^{20}$ (d) $7.338 \times 10^{22}$

52. $MnO^{-}_{4} + SO_3^{-2} + H^{+} \rightarrow Mn^{+2} + SO_4^{-2}$. The number of $H^{+}$ ions involved is

(a) 2 (b) 6 (c) 8 (d) 16

53. The amount of energy released when $10^6$ atoms of iodine in vapour state are converted to ions is $4.9 \times 10^{-13}$ J. What is the electron affinity of iodine in eV/atom?

(a) 2.0 (b) 2.5 (c) 3.06 (d) 2.75

54. Which of the following sequence regarding the first ionization potential of coinage metal is correct?

(a) Cu > Ag > Au (b) Cu < Ag < Au (c) Cu > Ag < Au (d) Ag > Cu < Au

55. 1.25 g of a solid dibasic acid is completely neutralised by 25 ml of 0.25 molar $Ba(OH)_2$ solution. Molecular mass of the acid is

(a) 100 (b) 150 (c) 120 (d) 200

56. Rearrange the following (I to IV) in the order of increasing masses and choose the correct answer from (1), (2), (3) and (4) (Atomic mass: N = 14, O = 16, Cu = 63).

I. 1 molecule of oxygen
II. 1 atom of nitrogen
III. $1 \times 10^{-10}$ g molecular weight of oxygen
IV. $1 \times 10^{-10}$ g atomic weight of copper

(a) II < I < III < IV (b) IV < III < II < I (c) II < III < I < IV (d) III < IV < I < II

57. The first and second ionisation enthalpies of a metal are 496 and 4560 kJ $mol^{-1}$, respectively. Hoe many moles of HCl and $H_2SO_4$, respectively, will be needed to react completely with 1 mole of the metal hydroxide?

(a) 1 and 0.5 (b) 2 and 0.5 (c) 1 and 1 (d) 1 and 2

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**Space for Rough Work**

58. Total number of groups in Mendeleef's table

(a) 18 (b) 9 (c) 7 (d) 10

59. The ultimate products of oxidation of most of hydrogen and carbon in food stuffs are

(a) $H_2O_2$ and CO (b) $CH_3OH$ and $CH_3COOH$

(c) $H_2O$ and $CO_2$ (d) $H_2$ and C

60. Which of the following ions has the smallest radius ?

(a) $Be^{2+}$ (b) $Li^{+}$ (c) $O^{2-}$ (d) $F^{-}$

61. In the reaction,

$HAsO_2 + Sn^{2+} \rightarrow As + Sn^{4+} + H_2O$ oxidizing agent is

(a) $Sn^{2+}$ (b) $Sn^{4+}$ (c) As (d) $HAsO_2$

62. Two oxides of a metal contain 50% and 40% metal M respectively. If the formula of the first oxide is $MO_2$, the formula of the second oxide will be

(a) $MO_2$ (b) $MO_3$ (c) $M_2O$ (d) $M_2O_5$

63. The stable oxidation state of Thallium, a IIIA group element is

(a) +1 (b) +3 (c) –3 (d) +5

64. Oxidation number of Cl in $NOClO_4$ is

(a) +7 (b) –7 (c) +5 (d) –5

65. 0.56 gm of gas occupies 280 $cm^3$ at NTP, then its molecular mass is

(a) 4.8 (b) 44.8 (c) 2 (d) 22.4

66. The number of significant figures in 6.0023 are

(a) 5 (b) 4 (c) 3 (d) 1

67. An atom of element has 2K, 8L and 3M electrons. Then that element is placed in

(a) I A group (b) II A group (c) III A group (d) IV A group

**Space for Rough Work**

68. Give the name of the inert gas atom in which the total number of d-electrons is equal to the difference in numbers of total p and s-electrons

(a) He (b) Ne (c) Ar (d) Kr

69. The acidic, basic and amphoteric oxides, respectively, are:

(a) MgO, $Cl_2O$, $Al_2O_3$ (b) $Cl_2O$, CaO, $P_4O_{10}$

(c) $Na_2O$, $SO_3$, $Al_2O_3$ (d) $N_2O_3$, $Li_2O$, $Al_2O_3$

70. The following data are available.

(i) % of Mg in Mgo and in $MgCl_2$ (ii) % of C in CO & $CO_2$

(iii) % of Cr in $K_2Cr_2O_7$ and $K_2CrO_4$ (iv) % of Cu isotopes in Cu metal

The law of multiple proportions may be illustrated by data.

(a) i & ii (b) only ii (c) i, ii & iii (d) only iii

71. 2.76 g of silver carbonate on being strongly heated yield a residue weighing:

(a) 2.64 g (b) 2.48 g (c) 2.16 g (d) 2.32 g

72. The standard reduction potentials of $Cu^{2+}/Cu$ and $Cu^{2+}/Cu^{+}$ are 0.337 and 0.153 V respectively. The standard electrode potentials of $Cu^{+}/Cu$ half cell is

(a) 0.521 V (b) 0.184 V (c) 0.490 V (d) 0.827 V

73. One mole of acidified $K_2Cr_2O_7$ on reaction with excess KI will liberate....mole (s) of $I_2$

(a) 6 (b) 1 (c) 7 (d) 3

74. Element with atomic number [Z=111] is named in the honour of

(a) Hassium (b) Sea Borgium (c) Meitnerium (d) Rontgenium

75. How many ml of 1 (M) $H_2SO_4$ is required to neutralise 10 ml of 1 (M) NaOH solution?

(a) 2.5 (b) 5.0 (c) 10.0 (d) 20.0

76. Diagonal relationship is shown by

(a) B - S (b) Li - Mg (c) Mg - Ca (d) S - Se

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**Space for Rough Work**

77. $H_2$ evolved at STP on complete reaction of 27 g of Aluminium with excess of aqueous NaOH would be

(a) 22.4 (b) 44.8 (c) 67.2 (d) 33.6 litres

78. The number of moles of sodium oxide in 620 g of it is

(a) 1 mol (b) 10 moles (c) 18 moles (d) 100 moles

79. How many electrons and protons are present in the balanced half reaction $NO_2^- \rightarrow NO$

(a) 1, 2 (b) 1, 1 (c) 2, 2 (d) 0, 1

80. Crystals of which pair are isomorphous

(a) $ZnSO_4$, $SnSO_4$ (b) $MgSO_4$, $CaSO_4$ (c) $ZnSO_4$, $MgSO_4$ (d) $PbSO_4$, $NiSO_4$

81. Sodium forms $Na^+$ and not $Na^{2+}$ because:

(a) sodium contains only one electron in outermost shell

(b) first ionization potential is small and the difference in first and second ionization potentials is large

(c) radius of $Na^{2+}$ is much smaller than of $Na^+$

(d) None of these

82. Most reactive meal among the following is:

(a) K (b) Li (c) Na (d) Mg

83. Which is more basic in character?

(a) RbOH (b) KOH (c) LiOH (d) NaOH

84. Sodium burns in dry air to give:

(a) $Na_2O$ (b) $Na_2O_2$ (c) $NaO_2$ (d) $Na_3N$

85. Which of the following compounds on reaction with NaOH and $H_2O_2$ gives yellow colour?

(a) $Zn(OH)_2$ (b) $Cr(OH)_3$ (c) $Al(OH)_3$ (d) None of these

86. Among the following, which has minimum solubility in water?

(a) KOH (b) CsOH (c) LiOH (d) RbOH

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**Space for Rough Work**

87. The pair of compounds which cannot exist together in solution is:

(a) $NaHCO_3$ and NaOH (b) $Na_2CO_3$ and $NaHCO_3$

(c) $Na_2CO_3$ and NaOH (d) $NaHCO_3$ and NaCl

88. Which alkaline earth metal does not impact the flame colour?

(a) Sr (b) Be (c) Ra (d) Ca

89. Which is used to remove $N_2$ from air?

(a) Mg (b) P (c) $H_2SO_4$ (d) $CaCl_2$

90. Which metal does not form ionic hydride?

(a) Ba (b) Mg (c) Ca (d) Sr

91. Hydrogen after losing one electron forms $H^+$ resembles in this property with:

(a) alkali metals (b) halogens

(c) alkaline earths metals (d) transitional elements

92. Moist hydrogen cannot be dried over concentrated $H_2SO_4$ because:

(a) it can catch fire (b) it is reduced by $H_2SO_4$

(c) a part of it is oxidized by $H_2SO_4$ (d) it decomposes $H_2SO_4$

93. Which can adsorb large volumes of hydrogen gas?

(a) Colloidal solution of palladium (b) Finely divided nickel

(c) Colloidal ferric hydroxide (d) Finely divided platinum

94. The most dangerous method of preparing hydrogen would be by the action of HCl and

(a) Zn (b) Fe (c) K (d) Al

95. Hydrogen gas is not liberated when the following metals added to dil. HCl:

(a) Mg (b) Sn (c) Ag (d) Zn

96. Heavy water reacts with $Al_4C_3$ to form:

(a) $CD_4$ and $Al(OH)_3$ (b) $CH_4$ and $Al(OD)_3$ (c) $CD_4$ and $Al(OD)_3$ (d) None of these

**Space for Rough Work**

97. Acidified solution of chromic acid on treatment with $H_2O_2$ yields:

(a) $CrO_3 + H_2O + O_2$ (b) $Cr_2O_2 + H_2O + O_2$

(c) $CrO_5 + H_2O + K_2SO_4$ (d) $H_2Cr_2O_7 + H_2O + O_2$

98. In which of the following reaction, $H_2O_2$ is acting as a reducing agent?

(a) $SO_2 + H_2O_2 \longrightarrow H_2SO_4$ (b) $2KI + H_2O_2 \longrightarrow 2KOH + I_2$

(c) $Ag_2O + H_2O_2 \longrightarrow 2Ag + H_2O + O_2$ (d) $PbS + 4H_2O_2 \longrightarrow PbSO_4 + 4H_2O$

99. Maximum concentration of ortho-$H_2$ in ordinary hydrogen is:

(a) 75% ortho-$H_2$ + 25% para-$H_2$ (b) 25% ortho-$H_2$ + 75% para-$H_2$

(c) 50% ortho-$H_2$ + 50% para-$H_2$ (d) 99% para-$H_2$ + 1% ortho-$H_2$

100. The hydrogen at the moment of its formation is called:

(a) atomic (b) ortho (c) para (d) nascent

**Space for Rough Work**

# ANKUR BATCH (SET A)
# BIOLOGY : REVISION TEST
## Topic: Unit 6

101. 'Nothing lives forever, but life continues'. What does it mean?
   (a) Older die but new are produced due to reproduction.
   (b) Nothing can produce without death.
   (c) Death has nothing to do with the continuation of life.
   (d) Parthenogenesis is must for sexual reproduction.

102. Offsets are produced by
   (a) meiotic divisions (b) mitotic divisions
   (c) parthenocarpy (d) parthenogenesis.

103. Which one of the following statements is not correct?
   (a) Offspring produced by the asexual reproduction are called clone.
   (b) Microscopic, motile, asexual reproductive structures are called zoospores.
   (c) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem.
   (d) Water hyacinth, growing in the standing water, drains oxygen from water that leads to the death of fishes.

104. Which of the following pairs is not correctly matched?

| | Mode of reproduction | Example |
|---|---|---|
| (a) | Binary fission | Sargassum |
| (b) | Conidia | Penicillium |
| (c) | Offset | Water hyacinth |
| (d) | Rhizome | Banana |

105. In ginger, vegetative propagation occurs through
   (a) bulbils (b) runners (c) rhizome (d) offsets.

106. Which one of the following is correctly matched?

(a) Onion-Bulb (b) Ginger-Sucker

(c) Chlamydomonas-Conidia (d) Yeast-Zoospores

107. Which one of the following pairs is wrongly matched while the remaining three are correct?

(a) Penicillium - Conidia

(b) Water hyacinth - Runner

(c) Bryophyllum - Leafbuds

(d) Agave - Bulbils

108. The "eyes" of the potato tuber are

(a) root buds (b) flower buds (c) shoot buds (d) axillary buds.

109. Vegetative propagation in Pistia occurs by

(a) stolon (b) offset (c) runner (d) sucker.

110. Vegetative propagation in mint occurs by

(a) offset (b) rhizome (c) sucker (d) runner.

111. During regeneration, modification of an organ to other organ is known as

(a) morphogenesis (b) epimorphosis

(c) morphallaxis (d) accretionary growth.

112. Vegetative reproduction of Agave occurs through

(a) rhizome (b) stolon (c) bulbils (d) sucker.

113. For union between stock and scion in grafting which one is the first to occur?

(a) Formation of callus (b) Production of plasmodesmata

(c) Differentiation of new vascular tissues (d) Regeneration of cortex and epidermis

114. In some plants, the female gamete develops into embryo without fertilisation. This phenomenon is known as

(a) parthenogenesis (b) autogamy

(c) parthenocarpy (d) syngamy.

115. Which of the following flowers only once in its lifetime?

(a) Bamboo species (b) Jackfruit

(c) Mango (d) Papaya

116. Which one of the following generates new genetic combinations leading to variation?

(a) Vegetative reproduction (b) Parthenogenesis

(c) Sexual reproduction (d) Nucellar polyembryony

117. Match column I with column II and select the correct option using the codes given below.

| | Column I | | Column II |
|---|---|---|---|
| A. | Pistils fused together | (i) | Gametogenesis |
| B. | Formation of gametes | (ii) | Pistillate |
| C. | Hyphae of higher ascomycetes | (iii) | Syncarpous |
| D. | Unisexual female flower | (iv) | Dikaryotic |

(a) A-(iv), B-(iii), C-(i),D-(ii) (b) A-(ii), B-(i),C-(iv), D-(iii)

(c) A-(i),B-(ii),C-(iv),D-(iii) (d) A-(iii), B-(i),C-(iv),D-(ii)

118. Flowers are unisexual in

(a) China rose (b) onion (c) pea (d) cucumber.

119. Product of sexual reproduction generally generates

(a) new genetic combination leading to variation (b) large biomass

(c) longer viability of seeds (d) prolonged dormancy.

120. Meiosis takes place in

(a) gemmule (b) megaspore (c) meiocyte (d) conidia.

121. Which one of the following is monoecious?

(a) Marchantia (b) Cycas (c) Pinus (d) Date palm

122. Which one of the following plants is monoecious?

(a) Pinus (b) Cycas (c) Papaya (d) Marchantia

123. Why is vivipary an undesirable character for annual crop plants?

(a) It reduces the vigour of the plant.

(b) It adversely affects the fertility of the plant.

(c) The seeds exhibit long dormancy.

(d) The seeds cannot be stored under normal conditions for the next season.

124. In oogamy, fertilisation involves

(a) a small non-motile female gamete and a large motile male gamete

(b) a large non-motile female gamete and a small motile male gamete

(c) a large non-motile female gamete and a small non-motile male gamete

(d) large motile female gamete and a small non-motile male gamete.

125. The process of series of changes from larva to adult after embryonic development is called

(a) regeneration (b) growth (c) metamorphosis (d) ageing.

126. The plant parts which consist of two generations-one within the other

(1) pollen grains inside the anther

(2) germinated pollen grain with two male gametes

(3) seed inside the fruit

(4) embryo sac inside the ovule

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

127. In water hyacinth and water lily, pollination takes place by

(a) insects or wind (b) water currents only (c) wind and water (d) insects and water.

128. Which is the most common type of embryo sac in angiosperms ?

(a) Tetrasporic with one mitotic stage of divisions

(b) Monosporic with three sequential mitotic divisions

(c) Monosporic with two sequential mitotic divisions

(d) Bisporic with two sequential mitotic divisions

129. What type of pollination takes place in Vallisneria?

(a) Pollination occurs in submerged condition by water.

(b) Flowers emerge above surface of water, and pollination occurs by insects.

(c) Flowers emerge above water surface, and pollen is carried by wind.

(d) Male flowers are carried by water currents to female flowers at surface of water.

130. In which one of the following, both autogamy and geitonogamy are prevented?

(a) Wheat (b) Papaya (c) Castor (d) Maize

131. Pollen grains can be stored for several years in liquid nitrogen having a temperature of

(a) – 120° C (b) – 80° C (c) – 196° C (d) – 160° C.

132. Which of the following has proved helpful in preserving pollen as fossils?

(a) Pollenkitt (b) Cellulosic inline (c) Oil content (d) Sporopollenin

133. Winged pollen grains are present in

(a) mustard (b) Cycas (c) mango (d) Pinus.

134. Functional megaspore in an angiosperm develops into an

(a) endosperm (b) embryo sac (c) embryo (d) ovule.

135. Attractants and rewards are required for

(a) entomophily (b) hydrophily (c) cleistogamy (d) anemophily.

136. Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by

(a) bee (b) wind (c) bat (d) water.

137. A dioecious flowering plant prevents both

(a) autogamy and geitonogamy (b) geitonogamy and xenogamy

(c) cleistogamy and xenogamy (d) autogamy and xenogamy.

138. In majority of angiosperms,

(a) egg has a filiform apparatus

(b) there are numerous antipodal cells

(c) reduction division occurs in the megaspore mother cells

(d) a small central cell is present in that embryo sac.

139. Pollination in water hyacinth and water lily is brought about by the agency of

(a) water (b) insects or wind (c) birds (d) bats.

140. The ovule of an angiosperm is technically equivalent to

(a) megasporangium (b) megasporophyll

(c) megaspore mother cell (d) megaspore.

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

(a) Pollen grains of many species cause severe allergies.

(b) Stored pollen in liquid nitrogen can be used in the crop breeding programmes.

(c) Tapetum helps in the dehiscence of anther.

(d) Exine of pollen grains is made up of sporopollenin.

142. Which of the following statements is not correct?

(a) Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.

(b) Some reptiles have also been reported as pollinators in some plant species.

(c) Pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.

(d) Insects that consume pollen or nectar without bringing about pollination are called pollen/ nectar robbers.

143. Proximal end of the filament of stamen is attached to the

(a) placenta (b) thalamus or petal (c) anther (d) connective.

144. Filiform apparatus is characteristic feature of

(a) aleurone cell (b) synergids (c) generative cell (d) nucellar embryo.

145. In angiosperms, microsporogenesis and megasporo -genesis

(a) involve meiosis (b) occur in ovule

(c) occur in anther (d) form gametes without further divisions.

146. Male gametophyte in angiosperms produces

(a) single sperm and two vegetative cells (b) three sperms

(c) two sperms and a vegetative cell (d) single sperm and a vegetative cell.

147. Which of the following are the important floral rewards to the animal pollinators ?

(a) Floral fragrance and calcium crystals (b) Protein pellicle and stigmatic exudates

(c) Colour and large size of flower (d) Nectar and pollen grains

148. Which one of the following may require pollinators, but is genetically similar to autogamy?

(a) Apogamy (b) Cleistogamy (c) Geitonogamy (d) Xenogamy

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

(a) The flowers pollinated by flies and bats secrete foul odour to attract them.

(b) Honey is made by bees by digesting pollen collected from flowers.

(c) Pollen grains are rich in nutrients and they are used in the form of tablets and syrups.

(d) Pollen grains of some plants cause severe allergies and bronchial afflictions in some people.

150. The hilum is a scar on the

(a) fruit, where style was present (b) seed, where micropyle was present

(c) seed, where funicle was attached (d) fruit, where it was attached to pedicel.

151. The Leydig cells found in the human body are the secretory source of

(a) Progesterone (b) intestinal mucus

(c) glucagon (d) androgens

152. The testes in humans are situated outside the abdominal cavity insides pouch called scrotum. The purpose served is for

(a) maintaining the scrotal temperature lower than the internal body temperature

(b) escaping any possible compression by the visceral organs

(c) providing more space for the growth of epididymis

(d) providing a secondary sexual feature for exhibiting the male sex

153. Vasa efferentia are the ductules leading from

(a) testicular lobules to rete testis (b) rete testis to vas deferens

(c) vas deferens to epididymis (d) epididymis to urethra

154. Seminal plasma in humans is rich in

(a) fructose and calcium but has no enzymes

(b) glucose and certain enzymes but has no calcium

(c) fructose and certain enzymes but poor in calcium

(d) fructose, calcium and certain enzymes

155. Grey crescent is the area

(a) at the point of entry of sperm into ovum

(b) just opposite to the site of entry of sperm into ovum

(c) at the animal pole

(d) at the vegetal pole

156. Capacitation occurs in :

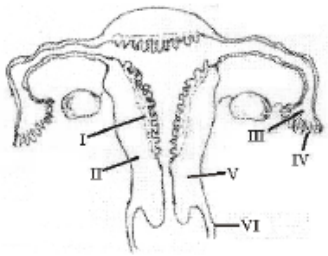
(a) Epididymis (b) Vas deferens

(c) Female reproductive tract (d) Rete testis

157. Which of the following layers in an antral follicle is acellular ?

(a) Theca interna (b) Stroma (c) Zona pellucida (d) Granulosa

158. The figure given below depicts a diagrammatic sectional view of the female reproductive system of humans. Which one set of three parts out of I-VI have been correctly identified ?




(a) (II) Endometrium(III) Infundibulum, (IV) Fimbriae

(b) (III) Infundibulum, (IV) Fimbriae, (V) Cervix,

(c) (IV) Oviducal funnel, (V) Uterus, (VI) Cervix

(d) (I) Perimetrium, (II)Myometrium, (111) Fallopian tube

159. Fertilization in humans is practically feasible only if

(a) the sperms are transported into vagina just after the release of ovum in fallopian tube

(b) the ovum and sperms are transported simultaneously to ampullary isthmic junction of the fallopian tube

(c) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the cervix

(d) the sperms are transported into cervix within 48 hrs of release of ovum in uterus

160. Which of the following cells during gameto-genesis is normally dipoid?

(a) Spermatid (b) Spermatogonia

(c) Secondary polar body (d) Primary polar body

161. In human females, meiosis-II is not complete until?

(a) fertilization (b) uterine implantation

(c) birth (d) puberty

162. Menstrual flow occurs due to lack of :

(a) FSH (b) Oxytocin (c) Vasopressin (d) Progesterone

163. Which of the following best illustrates FEEDBACK in development?

(a) As tissue (X) develops, it secretes something that slows down the growth of tissue (Y)

(b) Tissue (X) secretes RNA which changes the development of tissue (Y)

(c) As tissue (X) develops, it secretes enzymes that inhibit the development of tissue (Y)

(d) As tissue (X) develops, it secretes something that induces tissue (Y) to develop

164. Which one of the following statements is false in respect of viability of mammalian sperm?

(a) Sperm is viable for only up to 24 hours.

(b) Survival of sperm depends on the pH of the medium and is more active in alkaline medium.

(c) Viability of sperm is determined by its motility.

(d) Sperms must be concentrated in a thick suspension.

165. The secretory phase in the human menstrual cycle is also called

(a) luteal phase and lasts for about 6 days (b) follicular phase lasting for about 6 days

(c) luteal phase and lasts for about 13 days (d) follicular phase and lasts for about 13 days.

166. About which day in a normal human menstrual cycle does rapid secretion of LH (Popularly called LH-surge) normally occurs?

(a) $14^{th}$ day (b) $20^{th}$ day (c) $5^{th}$ day (d) $11^{th}$ day

167. Which one of the following statements about human sperm is correct?

(a) Acrosome has a conical pointed structure used for piercing and penetrating the egg, resulting in fertilisation

(b) The sperm lysins in the acrosome dissolve the egg envelope facilitating fertilization

(c) Acrosome serves as a sensory structure leading the sperm towards the ovum

(d) Acrosome serves no particular function

168. The correct sequence of spermatogenetic stages leading to the formation of sperms in a mature human testes is:

(a) spermatogonia - spermatocyte - spermatid - sperms

(b) spermatid - spermatocyte - spermatogonia - sperms

(c) spermatogonia - spermatid - spermatocyte - sperms

(d) spermatocyte - spermatogonia - spermatid - sperms

169. In humans, at the end of the first meiotic division, the male germ cells differentiate into the

(a) primary spermatocytes (b) secondary spermatocytes

(c) spermatids (d) spermatozonia

170. In the human female, menstruation can be deferred by the administration of

(a) combination of FSH and LH (b) combination of estrogen and progesterone

(c) FSH only (d) LH only

171. If mammalian ovum fails to get fertilized, which one of the following is unlikely?

(a) Corpus luteum will disintegrate (b) Progesterone secretion rapidly declines

(c) Estrogen secretion further decreases (d) Primary follicle starts developing

172. The growth of corpus luteum is initiated by

(a) Human chorionic gonadotropin (b) Follicle stimulating hormone

(c) Luteinizing hormone (d) Prolactin

173. Fertilizins are emitted by

(a) immature eggs (b) mature eggs

(c) sperms (d) polar bodies

174. At the end of first meiotic division, male sperm differentiates into

(a) secondary spermatocyte (b) primary spermatocyte

(c) spermatogonium (d) spermatid

175. Acrosome reaction in sperm is triggered by

(a) capacitation (b) release of lysine (c) influx of $Na^+$ (d) release of fertilizin

176. Middle piece of mammalian sperm possesses

(a) mitochondria and centriole (b) mitochondria only

(c) centriole only (d) nucleus and mitochondria

177. Sperm and egg nuclei fuse due to

(a) base pairing of their DNA and RNA (b) formation of hydrogen bonds

(c) mutual attraction (d) attraction of their protoplasts

178. Egg is liberated from ovary in

(a) secondary oocyte stage (b) primary oocyte stage

(c) oogonial stage (d) mature ovum stage

179. Which one of the following is not the function of placenta? It:

(a) secretes estrogen

(b) facilitates removal of carbon dioxide and waste material from embryo.

(c) secretes oxytocin during parturition

(d) facilitates supply of oxygen and nutrients to embyo

180. Signals for parturition originate from:

(a) Both placenta as well as fully developed foetus (b) Oxytocin released from maternal pituitary

(c) Placenta only (d) Fully developed foetus only

181. In vitro fertilisation is a technique that involves transfer of which one of the following into the fallopian tube?

(a) Embryo only, upto 8 cell stage (b) Either zygote or early embryo upto 8 cell stage

(c) Embryo of 32 cell stage (d) Zygote only

182. The first movements of the foetus and appearance of hair on its head are usually observed during which month of pregnancy?

(a) Fourth month (b) Fifth month (c) Sixth month (d) Third month

183. Foetal ejection reflex in human female is induced by

(a) release oxytocin from pituitary
(b) fully developed foetus and placenta
(c) differentiation of mammary glands
(d) pressure exerted by amniotic fluid

184. Which extra-embryonic membrane in humans prevents desiccation of the embryo inside the uterus?

(a) Chorion (b) Allantois (c) Yolk sac (d) Amnion

185. Cleavage in mammalian egg is

(a) superficial meroblastic
(b) discoidal meroblastic
(c) unequal holoblastic
(d) equal holoblastic

186. Gonads develop from embryonic

(a) ectoderm
(b) endoderm
(c) mesoderm
(d) both mesoderm and endoderm

187. The function of copper ions in copper releasing lUD's is :

(a) They inhibit gametogenesis
(b) They make uterus unsuitable for implantation
(c) They inhibit ovulation
(d) They suppress sperm motility and fertilising capacity of sperms

188. Which of the following approaches does not give the defined action of contraceptive ?

(a) Barrier methods prevent fertilization
(b) Intra uterine Increase phagocytosis devices of sperms, suppress sperm motility and fertilizing capacity of sperms
(c) Hormonal Prevent/retard entry contraceptives of sperms, prevent ovulation and fertilization
(d) Vasectomy Prevents spermatogenesis

189. Tubectomy is a method of sterilization in which:

(a) small part of the fallopian tube is removed or tied up.
(b) ovaries are removed surgically
(c) small part of vas deferens is removed or tied up.
(d) uterus is removed surgically.

190. Which of the following cannot be detected in a developing foetus by amniocentesis?

(a) Sex of the foetus
(b) Down syndrome
(c) Jaundice
(d) Klinefelter syndrome

191. One of the following is not a method of contraception - which one?

(a) Tubectomy
(b) Condoms
(c) Pills of a combination of oxytocin and vasopressin
(d) Lippes loop

192. Which one of the following is the most widely accepted method of contraception in India, as at present ?

(a) Cervical caps
(b) Tubectomy
(c) Diaphragms
(d) ILJDs. (Intra uterine devices)

193. Given below are four methods (A-D) and their modes of action (a-d) in achieving contraception. Select their correct matching from the four options that follow:

| | Method | | Mode of Action |
|---|---|---|---|
| A. | The pill | (a) | Prevents sperms reaching cervix |
| B. | Condom | (b) | Prevents implantation |
| C. | Vasectomy | (c) | Prevents ovulation |
| D. | Copper T | (d) | Semen contains no sperms |

Matching:

(a) A-(c), B-(a), C-(d), D-(b)
(b) A-(d), B-(a), C-(b), D-(c)
(c) A-(c), B-(d), C-(a), D-(b)
(d) A-(b), B-(c), C-(a), D-(d)

194. In case of a couple where the male is having a very low sperm count, which technique will be suitable for fertilisation?

(a) Gamete intracytoplasmic fallopian transfer
(b) Artificial Insemination
(c) Intracytoplasmic sperm injection
(d) Intrauterine transfer

195. A childless couple can be assisted to have a child through a technique called GIFT. The full form of this technique is :

(a) Gamete intra fallopian transfer
(b) Gamete internal fertilization and transfer
(c) Germ cell internal fallopian transfer
(d) Gemete inseminated fallopian transfer

196. Artificial insemination mean:

(a) Transfer of sperms of husband to a test tube containing ova

(b) Artificial introduction of sperms of a healthy donor into the vagina

(c) Introduction of sperms of a healthy donor directly into the ovary

(d) Transfer of sperms of a healthy donor to a test tube containing ova

197. The stage transferred into the uterus after induced fertilization of ova in the laboratory is

(a) Zygote (b) Embryo at 4 blastomere stage

(c) Embryo at 2 blastomere stage (d) Morula

198. Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy?

(a) Eight weeks (b) Twelve weeks (c) Eighteen weeks (d) Six weeks

199. Consider the statements given below regarding contraception and answer as directed thereafter:

(i) Medical Termination of Pregnancy (MTP) during first trimester is generally safe

(ii) Generally chances of conception are nil until mother breast-feeds the infant upto two years

(iii) Intrauterine devices like copper-T are effective contraceptives (iv) Contraception pills may be taken upto one week after coitus to prevent conception

Which two of the above statements are correct?

(a) ii and iii (b) iii and iv (c) i and iii (d) i and ii

200. Test tube baby is one who

(a) is born out of artificial insemination

(b) has undergone development in a test tube

(c) is born out of the technique of fertilization in vitro

(d) has been developed without fertilization

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**Max Marks: 720** **Date: 06.11.2022**

## ANKUR BATCH
## PHYSICS : REVISION TEST – 1 (SET A) ANSWER KEY
## Topic: Ray Optics + Circular Motion + Gravitation

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. | (c) | 2. | (b) | 3. | (b) | 4. | (d) | 5. | (c) |
| 6. | (c) | 7. | (d) | 8. | (a) | 9. | (a) | 10. | (a) |
| 11. | (c) | 12. | (b) | 13. | (d) | 14. | (c) | 15. | (c) |
| 16. | (b) | 17. | (d) | 18. | (c) | 19. | (d) | 20. | (a) |
| 21. | (c) | 22. | (d) | 23. | (b) | 24. | (c) | 25. | (a) |
| 26. | (a) | 27. | (b) | 28. | (d) | 29. | (a) | 30. | (a) |
| 31. | (c) | 32. | (b) | 33. | (d) | 34. | (d) | 35. | (a) |
| 36. | (d) | 37. | (c) | 38. | (a) | 39. | (d) | 40. | (a) |
| 41. | (c) | 42. | (b) | 43. | (b) | 44. | (a) | 45. | (d) |
| 46. | (d) | 47. | (d) | 48. | (c) | 49. | (a) | 50. | (a) |

**Date: 06.11.2022**

## ANKUR BATCH
## CHEMISTRY : REVISION TEST-1 (SET A) ANSWER KEY
## Topic: Mole Concept + Redox Reaction + Periodic Properties + S Block + Hydrogen

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 51. | (b) | 52. | (b) | 53. | (c) | 54. | (c) | 55. | (d) |
| 56. | (a) | 57. | (a) | 58. | (b) | 59. | (c) | 60. | (a) |
| 61. | (d) | 62. | (b) | 63. | (a) | 64. | (a) | 65. | (b) |
| 66. | (a) | 67. | (c) | 68. | (d) | 69. | (d) | 70. | (b) |
| 71. | (c) | 72. | (a) | 73. | (d) | 74. | (d) | 75. | (b) |
| 76. | (b) | 77. | (d) | 78. | (b) | 79. | (a) | 80. | (c) |
| 81. | (b) | 82. | (a) | 83. | (a) | 84. | (b) | 85. | (b) |
| 86. | (c) | 87. | (a) | 88. | (b) | 89. | (a) | 90. | (b) |
| 91. | (a) | 92. | (c) | 93. | (a) | 94. | (c) | 95. | (c) |
| 96. | (c) | 97. | (c) | 98. | (c) | 99. | (a) | 100. | (d) |

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# ANKUR BATCH
# BIOLOGY : REVISION TEST (SET A) ANSWER KEY
## Topic: Unit 6

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 101. | (a) | 102. | (b) | 103. | (c) | 104. | (a) | 105. | (c) |
| 106. | (a) | 107. | (b) | 108. | (d) | 109. | (b) | 110. | (c) |
| 111. | (b) | 112. | (c) | 113. | (a) | 114. | (a) | 115. | (a) |
| 116. | (c) | 117. | (d) | 118. | (d) | 119. | (a) | 120. | (c) |
| 121. | (c) | 122. | (a) | 123. | (d) | 124. | (b) | 125. | (c) |
| 126. | (d) | 127. | (a) | 128. | (b) | 129. | (d) | 130. | (b) |
| 131. | (c) | 132. | (d) | 133. | (d) | 134. | (b) | 135. | (a) |
| 136. | (b) | 137. | (a) | 138. | (c) | 139. | (b) | 140. | (a) |
| 141. | (c) | 142. | (c) | 143. | (b) | 144. | (b) | 145. | (a) |
| 146. | (c) | 147. | (d) | 148. | (c) | 149. | (b) | 150. | (c) |
| 151. | (d) | 152. | (a) | 153. | (b) | 154. | (d) | 155. | (b) |
| 156. | (c) | 157. | (c) | 158. | (b) | 159. | (b) | 160. | (b) |
| 161. | (a) | 162. | (d) | 163. | (d) | 164. | (d) | 165. | (c) |
| 166. | (a) | 167. | (b) | 168. | (a) | 169. | (b) | 170. | (b) |
| 171. | (c) | 172. | (c) | 173. | (b) | 174. | (a) | 175. | (d) |
| 176. | (a) | 177. | (d) | 178. | (a) | 179. | (c) | 180. | (a) |
| 181. | (a) | 182. | (b) | 183. | (b) | 184. | (d) | 185. | (c) |
| 186. | (c) | 187. | (d) | 188. | (d) | 189. | (a) | 190. | (c) |
| 191. | (c) | 192. | (d) | 193. | (a) | 194. | (b) | 195. | (b) |
| 196. | (b) | 197. | (d) | 198. | (b) | 199. | (c) | 200. | (c) |