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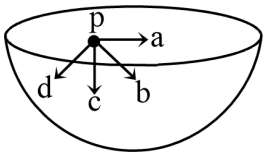
Knowledge is Discipline
BJNP
Learning with the Speed of Mumbai and the Tradition of Kota

Max Marks: 100 **Date: 06.11.2022**

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

1. The figure shows a hemispherical shell having uniform mass density. The direction of gravitational field intensity at point P will be along



(a) a (b) b (c) c (d) d

2. Two equal masses separated by a distance (d) attract each other with a force (F). If one unit of mass is transferred from one of them to the other, the force
   (a) Does not change
   (b) Decreases by (G/d^2)
   (c) Becomes Two equal masses separated by a distance (d) attract each other with a force (F). If one unit of mass is transferred from one of them to the other, (G/d^2) times
   (d) Increases by $(2G/d^2)$

3. Three masses, each equal to M, are placed at the three corners of a square of side a. The force of attraction on unit mass at the fourth corner will be

(a) $\frac{GM}{3a^2}$ (b) $\frac{GM}{a^2}\sqrt{3}$ (c) $\frac{3GM}{a^2}$ (d) $\frac{GM}{a^2}\left[\frac{1}{2}+\sqrt{2}\right]$

4. Four particles of masses m, 2m, 3m and 4m are kept in sequence at the corners of a square of side a. The magnitude of gravitational force acting on a particle of mass m placed at the centre of the square will be

(a) $\frac{24m^2G}{a^2}$ (b) $\frac{6m^2G}{a^2}$ (c) $\frac{4\sqrt{2}m^2G}{a^2}$ (d) Zero

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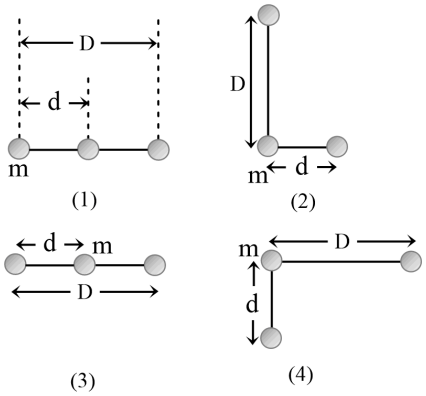
Space for Rough Work

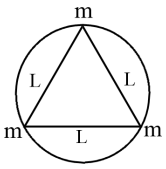
5. The figure shows four arrangements of three particles of equal masses. Rank the arrangement according to the magnitude of the gravitational force on the particle m, greatest first.



(a) 1, tie of 2 and 4, then 3 (b) 1, 4, 3, 2

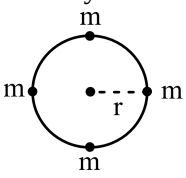
(c) 2, 3, 4, 1 (d) 4, 3, 1, 2

6. Three identical particles each of mass m are at the vertices of an equilateral triangle of side L. If they are to preserve their original configuration of an equilateral triangle, the speed with which they must revolve under the influence of one another's gravity in a circular orbit circumscribing the triangle is:



(a) $\sqrt{\frac{3Gm}{L}}$ (b) $\sqrt{\frac{Gm}{L}}$ (c) $\sqrt{\frac{Gm}{3L}}$ (d) $\sqrt{\frac{3Gm}{L^2}}$

7. Four masses of m each are orbiting in a circle of radius r in the same direction under gravitational force. The velocity of each particle is:



(a) $\sqrt{\frac{Gm}{r}\frac{(1+2\sqrt{2})}{2}}$ (b) $\sqrt{\frac{Gm}{r}}$ (c) $\sqrt{\frac{Gm}{r}(1+2\sqrt{2})}$ (d) $\sqrt{\frac{Gm}{r}\frac{(1+2\sqrt{2})}{4}}$

Space for Rough Work

8. The dimensional formula for gravitational constant is

(a) $[M^{-1}L^{3}T^{-2}]$ (b) $[M^{3}L^{-1}T^{-2}]$ (c) $[M^{-1}L^{2}T^{3}]$ (d) $[M^{2}L^{3}T^{-1}]$

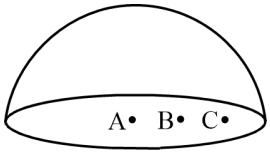
9. The force between two objects of equal masses is F. If 20% mass of one object is transferred to the other object, then the new force will be :

(a) $\frac{97}{100}F$ (b) $\frac{25}{24}F$ (c) $\frac{24}{25}F$ (d) $\frac{100}{96}F$

10. The mass of the earth is 6.00×10^{24} Kg and that of the moon is 7.40×10^{22} kg. The constant of gravitation G = 6.67×10^{-11} N $-m^2/kg^2$. The potential energy of the system is -7.79×10^{28} joules. The mean distance between the earth and moon is

(a) 3.80×10^{8} metres (b) 3.37×10^{6} metres (c) 7.60×10^{4} metres (d) 1.90×10^{2} metres

11. Mass M is uniformly distributed only on the curved surface of a thin hemispherical shell. A, B and C are three points on the circular base of the hemisphere, such that A is the centre. Let the gravitational potential at points A, B and C be V_A, V_B, V_C respectively. Then



(a) $V_A > V_B > V_C$ (b) $V_C > V_B > V_A$
(c) $V_B > V_A$ and $V_B > V_C$ (d) $V_A = V_B = V_C$

12. Three particles of equal mass m are situated at the vertices of an equilateral triangle of side l. The work done in increasing the side of the triangle to $2l$ will be:

(a) $\frac{3G^{2}m}{2l}$ (b) $\frac{Gm^{2}}{2l}$ (c) $-\frac{3Gm^{2}}{2l}$ (d) $\frac{3Gm^{2}}{l}$

13. The real velocity and the angular momentum of the planet are related by which of the following relations? (where m_p is the mass of the planet)

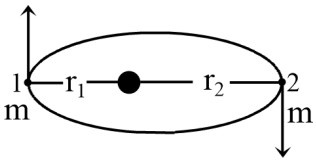
(a) $\frac{\Delta\vec{A}}{\Delta t} = \frac{\vec{L}}{2m_p}$ (b) $\frac{\Delta\vec{A}}{\Delta t} = \frac{\vec{L}}{m_p}$ (c) $\frac{\Delta\vec{A}}{\Delta t} = \frac{2\vec{L}}{m_p}$ (d) $\frac{\Delta\vec{A}}{\Delta t} = \frac{\vec{L}}{\sqrt{2}m_p}$

Space for Rough Work

14. Two planets revolve with same angular velocity about a star. The radius of orbit of the outer planet is twice the radius of orbit of the inner planet. If T is the time period of the revolution of the outer planet, find the time in which the inner planet will fall into the star, if it was suddenly stopped.

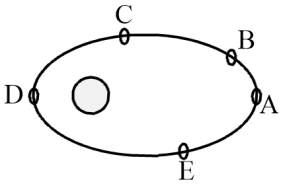
(a) $\frac{T\sqrt{2}}{8}$ (b) $\frac{T\sqrt{2}}{16}$ (c) $\frac{T\sqrt{2}}{4}$ (d) $\frac{T\sqrt{2}}{32}$

15. The ratio of KE of the planet at points 1 and 2 is:



(a) $\left(\frac{r_1}{r_2}\right)^2$ (b) $\left(\frac{r_2}{r_1}\right)^2$ (c) $\frac{r_1}{r_2}$ (d) $\frac{r_2}{r_1}$

16. The planet mercury is revolving in an elliptical orbit around the sun, as shown. The kinetic energy of mercury at point P is denoted by K_p. Then:



(a) $K_A < K_B < K_D < K_E$ (b) $K_D < K_B < K_E < K_C < K_A$
(c) $K_D < K_C < K_E < K_B < K_A$ (d) $K_E < K_D < K_C < K_B < K_A$

17. A body is imparted a velocity v from the surface of the earth. If υ_0 is orbital velocity and υ_e is the escape velocity then for

(A) $\upsilon = \upsilon_0$ the body follows a circular track around the earth.
(B) $\upsilon = \upsilon_0$ but $< \upsilon_e$, the body follows elliptical path around the earth
(C) $\upsilon < \upsilon_0$ the body follows elliptical path and returns to surface of earth
(D) $\upsilon > \upsilon_e$, the body follows hyperbolic path and escapes the gravitational pull of the earth

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

Space for Rough Work

18. If υ_e is escape velocity and υ_0, is orbital velocity of the satellite for orbit close to the Earth's surface, then these are related by

(a) $\upsilon_0 = \sqrt{2}\upsilon_e$ (b) $\upsilon_0 = \upsilon_e$ (c) $\upsilon_e = \sqrt{2}\upsilon_0$ (d) $\upsilon_e = \sqrt{2\upsilon_0}$

19. A body falls freely towards the earth from a height 2R above the surface of the earth, where initially it was at rest. If R is the radius of the earth, then its velocity on reaching the surface of the earth is

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

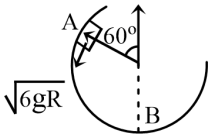
20. A particle of mass m is thrown upwards from the surface of the earth, with a velocity u. The mass and the radius of the earth are, respectively, M and R. G is gravitational constant and g is acceleration due to gravity on the surface of the earth. The minimum value of u so that the particle does not return back to earth is

(a) $\sqrt{\frac{2GM}{R}}$ (b) $\sqrt{\frac{2GM}{R^2}}$ (c) $\sqrt{2gR^2}$ (d) $\sqrt{\frac{4GM}{R^2}}$

21. A stone tied to a string of length L is whirled in a vertical circle with the other end of the string at the centre. At a certain instant of time, the stone is at its lowest position and has a speed u. The magnitude of the change in its velocity as it reaches a position where the string is horizontal is

(a) $\sqrt{u^2 - 2gL}$ (b) $\sqrt{2gL}$ (c) $\sqrt{u^2 - gL}$ (d) $\sqrt{2(u^2 - gL)}$

22. The figure shows a smooth vertical circular track AB of radius R. A block slides along the surface AB when it is given a velocity equal to $\sqrt{6gR}$ at point A. The ratio of the force exerted by the track on the block at point A to that at point B is



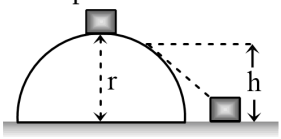
(a) 0.25 (b) 0.35 (c) 0.45 (d) 0.55

Space for Rough Work

23. A body is revolving in a vertical circle with constant mechanical energy. The speed of the body at the highest point is $\sqrt{2rg}$. The speed of the body at the lowest point is

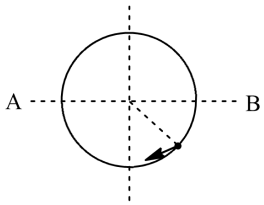
(a) $\sqrt{7gr}$ (b) $\sqrt{6gr}$ (c) $\sqrt{8gr}$ (d) $\sqrt{9gr}$

24. A small body of mass m slides down from the top of a hemisphere of radius r. The surface of the block and hemisphere are frictionless. The height at which the body loses contact with the surface of the sphere is



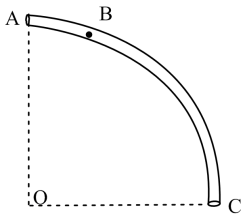
(a) $\frac{3}{2}r$ (b) $\frac{2}{3}r$ (c) $\frac{1}{2}gt^2$ (d) $\frac{\upsilon^2}{2g}$

25. A particle of mass 'm' oscillates along the horizontal diameter AB inside a smooth spherical shell of radius R. At any instant K.E. of the particle is K. Then force applied by particle on the shell at this instant is :



(a) $\frac{K}{R}$ (b) $\frac{2K}{R}$ (c) $\frac{3K}{R}$ (d) $\frac{K}{2R}$

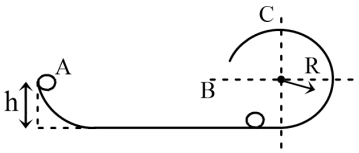
26. The tube AC forms a quarter circle in a vertical plane. The ball B has an area of cross-section slightly smaller than that of the tube, and can move without friction through it. B is placed at A and displaced slightly. It will



(a) Always be in contact with the inner wall of the tube
(b) Always be in contact with the outer wall of the tube
(c) Initially be in contact with the inner wall and later with the outer wall
(d) Initially be in contact with outer wall and later with the inner wall

Space for Rough Work

27. Ball A of mass m, after sliding from an inclined plane, strikes elastically another ball B of the same mass at rest. Find the minimum height h so that ball B just completes the circular motion of the surface at C. All surfaces are smooth.



(a) $h = \frac{5}{2}R$ (b) $h = 2R$ (c) $h = \frac{2}{5}R$ (d) $h = 3R$

28. The maximum velocity at the lowest point, so that the string just slack at the highest point in a vertical circle of radius 'l'.

(a) $\sqrt{gl}$ (b) $3\sqrt{gl}$ (c) $\sqrt{5gl}$ (d) $\sqrt{7gl}$

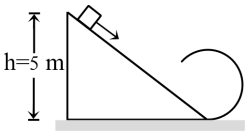
29. A body of mass m hangs at one end of a string of length l, the other end of which is fixed. It is given a horizontal velocity so that the string would just reach where it makes an angle of 60° with the vertical. The tension in the string at mean position is:

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

30. A fighter plane is moving in a vertical circle of radius 'r'. Its minimum velocity at the highest point of the circle will be

(a) $\sqrt{3gr}$ (b) $\sqrt{2gr}$ (c) $\sqrt{gr}$ (d) $\sqrt{gr/2}$

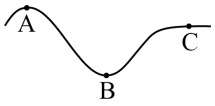
31. As per given figure to complete the circular loop what should be the radius if initial height is 5 m



(a) 4 m (b) 3 m (c) 2.5 m (d) 2 m

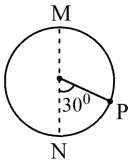
Space for Rough Work

32. A car moves on a straight road with uniform speed. Normal reaction at A, B and C are N_A, N_B and N_C respectively. Then:



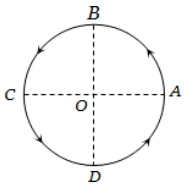
(a) $N_A > N_B$ (b) $N_A > N_C$ (c) $N_A = N_C$ (d) $N_B > N_C > N_A$

33. A ball of mass 1/2 kg is moved in a vertical circle. When ball is at P, then calculate its tangential acceleration [take, g = 10 m/s^2]



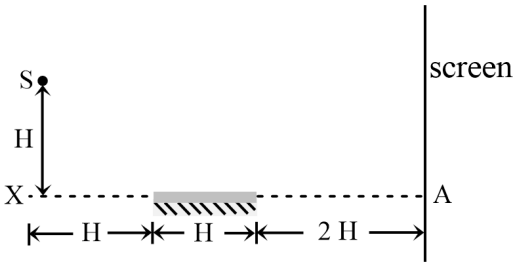
(a) $2m/s^2$ (b) $3m/s^2$ (c) $5m/s^2$ (d) $1m/s^2$

34. Figure shows a body of mass m moving with a uniform speed v along a circle of radius r. The change in velocity in going from A to B is



(a) $\upsilon\sqrt{2}$ (b) $\upsilon/\sqrt{2}$ (c) υ (d) zero

35. A point source has been placed as shown in the figure. What is the length on the screen that will receive reflected light from the mirror?



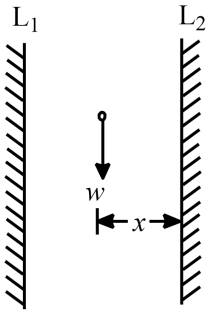
(a) 2 H (b) 3 H (c) H (d) None of these

Space for Rough Work

36. Two plane mirrors are inclined to each other such that a ray of light incident on the first mirror is parallel to the second and light reflected from the second mirror is parallel to the first mirror. Determine the angle between the two mirrors.

(a) 60° (b) 30° (c) 90° (d) 180°

37. Two plane mirrors L_1 and L_2 are parallel to each other and 3 m part. A person standing x m from the right mirror L_2 looks into this mirror and sees a series of images. The distance between the first and second image is 4 m. Then the value of x is



(a) 2 m (b) 1.5 m (c) 1 m (d) 2.5 m

38. A luminous point object is moving along the principal axis of a concave mirror of focal length 12 cm towards it. When its distance from the mirror is 20 cm its velocity is 4 cm/s. The velocity of the image in cm/s at that instant is:

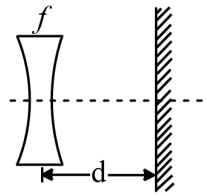
(a) 6, towards the mirror (b) 6, away from the mirror
(c) 9, away from the mirror (d) 9, towards the mirror

39. A lens of focal length 20.0 cm and aperture radius 2.0 cm is placed at a distance 30.0 cm from a point source of light. On the other side a screen is placed at a distance 50.0 cm from the lens. The radius of spot of light formed on screen is. (Neglect spherical aberration through lens):

(a) 0.5 cm (b) 0.3 cm (c) 0.2 cm (d) 1.0 cm

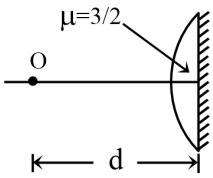
Space for Rough Work

40. A lens of focal length 20.0 cm and aperture radius 2.0 cm is placed at a distance 30.0 cm from a point source of light. On the other side a screen is placed at a distance 50.0 cm from the lens. The radius of spot of light formed on screen is. (Neglect spherical aberration through lens):



(a) 20 cm behind the mirror (b) 7.5 cm in front of the mirror
(c) 7.5 cm behind the mirror (d) 2.5 cm in front of the mirror

41. A plano-convex lens of focal length 10 cm is silvered at its plane face. The distance d at which an object must be placed in order to get its image on itself is:

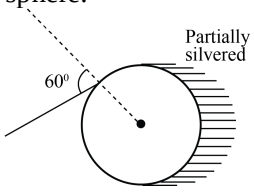


(a) 5 cm (b) 20 cm (c) 10 cm (d) 2.5 cm

42. In an isosceles prism of prism angle 45°, it is found that when the angle of incidence is same as the prism angle, the emergent ray grazes the emergent surface. Find the refractive index of the material of the prism. For what angle of incidence the angle of deviation will be minimum?

(a) 1 (b) $\sqrt{3}, 41.51^{o}$ (c) 2 (d) 3

43. A ray is incident on a glass sphere as shown in the figure. The opposite surface of the sphere is partially silvered. If the net deviation of the ray transmitted at the partially silvered surface is 1/3 rd of the net deviation suffered by the ray reflected at the partially silvered surface (after emerging out of the sphere). Find the refractive index of the sphere.



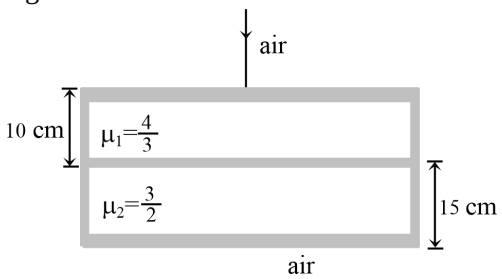
(a) $\sqrt{3}$ (b) 2 (c) 1.5 (d) $3\sqrt{3}$

Space for Rough Work

44. The height to which water must be filled into a vessel of height 21 cm such that it appears half-filled when viewed from above is ($\mu = 4/3$)

(a) 8 cm (b) 10.5 cm (c) 12 cm (d) 14 cm

45. Considering normal incidence of ray, the equivalent refractive index of combination of two slabs shown in the figure is

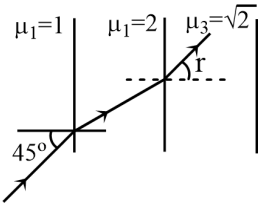


(a) 1.8 (b) 1.43 (c) 2 (d) 1.21

46. A ray of light is incident at an angle of 60° with the normal to a cm, thick plate $(\mu = \sqrt{3})$. The shift in the path of the ray as it emerges out from the plate is

(a) 1 cm (b) 1.2 cm (c) 0.5 cm (d) 1.8 cm

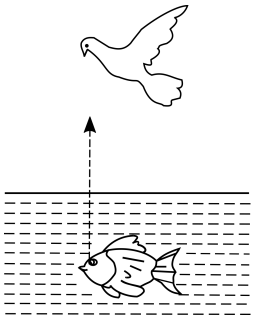
47. In the figure shown is equal to $\angle r$ is equal to



(a) 45° (b) 30° (c) 60° (d) 90°

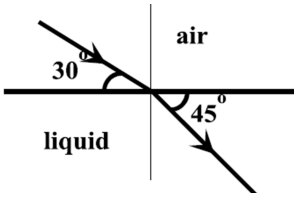
Space for Rough Work

48. A fish is vertically below a flying bird moving vertically down towards water surface. The bird will appear to the fish to be



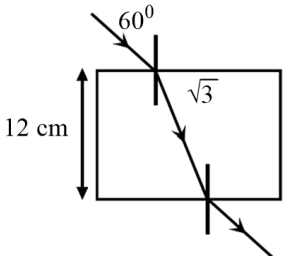
(a) moving faster than its speed and also away from the real distance
(b) moving faster than its real speed and never than its real distance.
(c) moving slower than its real speed and also nearer than its real distance
(d) moving slower than its real speed and away from the real distance

49. Figure shows the path of a ray of light from air into a liquid. The index of refraction of the liquid with respect to air is



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

50. A glass slab has width 12 cm. The refractive index of glass is $\sqrt{3}$. A ray of monochromatic light is incident on one face at an angle of 60° as shown in the figure. The lateral displacement the ray suffers in passing through the slab is:



(a) $2\sqrt{3}$ cm (b) $4\sqrt{3}$ cm (c) 6 cm (d) $3\sqrt{3}$ cm

Space for Rough Work

Date: 06.11.2022

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

51. 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

52. 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

53. Total number of groups in Mendeleef's table

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

54. 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

55. 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

56. 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

57. 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

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

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

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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. 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

61. The number of significant figures in 6.0023 are

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

62. 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

63. 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

64. 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

65. $MnO^-_4 + SO_3^{-2} + H^+ \rightarrow Mn^{+2} + SO_4^{-2}$. The number of H^+ ions involved is

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

66. 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. 1×10^{-10} g molecular weight of oxygen IV. 1×10^{-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

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

(a) +1 (b) +3 (c) –3 (d) +5

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

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

69. 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) $HAsO_2$

70. 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

71. 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

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

(a) 6.023×10^{22} (b) 1.338×10^{22} (c) 6.023×10^{20} (d) 7.338×10^{22}

73. Crystals of which pair are isomorphous

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

74. Diagonal relationship is shown by

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

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

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

76. 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

77. Oxidation number of Cl in $NOClO_4$ is

(a) +7 (b) –7 (c) +5 (d) –5

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78. 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

79. 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

80. 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

81. Hydrogen after losing one electron forms H^{+} resembles in this property with:

(a) alkali metals (b) halogens

(c) alkaline earths metals (d) transitional elements

82. 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

83. 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

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

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

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

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

86. 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

87. 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) $H_2Cr_2O_7 + H_2O + O_2$

Space for Rough Work

88. 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) $PbS + 4H_2O_2 \longrightarrow PbSO_4 + 4H_2O$

89. 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

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

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

91. 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

92. Most reactive meal among the following is:

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

93. Which is more basic in character?

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

94. Sodium burns in dry air to give:

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

95. 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

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

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

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97. 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

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

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

99. Which is used to remove N_2 from air?

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

100. Which metal does not form ionic hydride?

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

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Knowledge is Discipline

BJNP

Learning with the Speed of Mumbai and the Tradition of Kota

Max Marks: 100 **Date: 06.11.2022**

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

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

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

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