

Max. Marks: 100

Date: 20.11.2022

ARJUNA BATCH

PHYSICS : REVISION TEST 3 (SET B)

Topics: Ray Optics, Circular Motion, Gravitation, Wave Optics, Rotational Motion and Elasticity

1. A wheel is rotating at 900 r.p.m. about its axis. When the power is cut-off, it comes to rest in 1 minute. The angular retardation in radian/ s^2 is

(a) $\pi/2$ (b) $\pi/4$ (c) $\pi/6$ (d) $\pi/8$

2. Let F be the force acting on a particle having position vector \vec{r} and \vec{T} be the torque of this force about the origin. Then

(a)	$\vec{r} \cdot \vec{T} = 0$ and $\vec{F} \cdot \vec{T} = 0$	(b)	$\vec{r} \cdot \vec{T} = 0$ and $\vec{F} \cdot \vec{T} \neq 0$

- (c) $\vec{r} \cdot \vec{T} \neq 0$ and $\vec{F} \cdot \vec{T} = 0$ (d) $\vec{r} \cdot \vec{T} \neq 0$ and $\vec{F} \cdot \vec{T} \neq 0$
- 3. A couple produces
 - (a) Purely linear motion (b) Purely rotational motion
 - (c) Linear and rotational motion (d) No motion
- 4. For a system to be in equilibrium, the torques acting on it must balance. This is true only if the torques are taken about
 - (a) The centre of the system (b) The centre of mass of the system
 - (c) Any point on the system (d) Any point on the system or outside it
- 5. What is the torque of the force $\vec{F} = (2\hat{i} 3\hat{j} + 4k)N$ acting at the pt. $\vec{r} = (3\hat{i} + 2\hat{j} + 3k)m$ about the origin
 - (a) $-17\hat{i} + 6\hat{j} + 13k$ (b) $-6\hat{i} + 6\hat{j} 12k$ (c) $17\hat{i} 6\hat{j} 13k$ (d) $6\hat{i} 6\hat{j} + 12k$



- 6. Two men are carrying a uniform bar of length L, on their shoulders. The bar is held horizontally such that younger man gets $(1/4)^{\text{th}}$ load. Suppose the younger man is at the end of the bar, what is the distance of the other man from the end.
 - (a) L/3 (b) L/2 (c) 2L/3 (d) 3L/4
- 7. A uniform meter scale balances at the 40 cm mark when weights of 10 g and 20 g are suspended from the 10 cm and 20 cm marks. The weight of the metre scale is
 - (a) 50 g (b) 60 g (c) 70 g (d) 80 g
- 8. A circular disc of radius R and thickness $\frac{R}{6}$ has moment of inertia I about an axis passing through its centre and perpendicular to its plane. It is melted and recasted into a solid sphere. The moment of inertia of the sphere about its diameter as axis of rotation is
 - (a) I (b) $\frac{2I}{8}$ (c) $\frac{I}{5}$ (d) $\frac{I}{10}$
- 9. The moment of inertia of a meter scale of mass 0.6 kg about an axis perpendicular to the scale and located at the 20 cm position on the scale in kg m^2 is (Breadth of the scale is negligible)
 - (a) 0.074 (b) 0.104 (c) 0.148 (d) 0.208
- 10. Two discs of the same material and thickness have radii 0.2 m and 0.6 m. Their moments of inertial about their axes will be in the ratio
 - (a) 1:81 (b) 1:27 (c) 1:9 (d) 1:3
- 11. Fringe width in a particular YDSE is measured to be β . What will be the fringe width if the wavelength of the light is doubled, the separation between the slits is halved and the separation between the screen and slits is tripled?
 - (a) 10 times (b) 11 times (c) Same (d) 12 times
- 12. If the 5th order maxima of wavelength 4000 Å in Young's double-slit experiment coincides with the nth order maxima of wavelength 5000 Å, then n is equal to:



Space for Rough Work



18. The relationship between Young's modulus Y, Bulk modulus K and modulus of rigidity n is

(a)
$$Y = \frac{9nK}{n+3K}$$
 (b) $\frac{9YK}{Y+3K}$ (c) $Y = \frac{9nK}{3+K}$ (d) $Y = \frac{3nK}{9n+K}$

- 19. The quality of the material which opposes the change in shape, volume or length is called
 - (a) Intermolecular repulsion (b) Intermolecular behaviour
 - (c) Viscosity (d) Elasticity
- 20. When a block of mass M is suspended by a long wire of length L, the length of the wire becomes (L + I). The elastic potential energy stored in the extended wire is:
 - (a) $\frac{1}{2}$ MgL (b) MgI (c) MgL (d) $\frac{1}{2}$ MgI
- 21. The correct variation of gravitational potential V with radius r measured from the centre of earth of radius R is given by





23.

22. The figure represents an elliptical orbit of a planet around sun. The planet takes time T_1 to travel from A to B and it takes time T_2 to travel from C to D. If the area CSD is double that of area ASB, then



- (a) $T_1 = T_2$ (b) $T_1 = 2T_2$ (c) $T_1 = 0.5 T_2$ (d) Data insufficient At what depth from the surface of earth the time period of a simple pendulum is 0.5% more than that on the
 - surface of the Earth? (Radius of earth is 6400 km)

 (a) 32 km
 (b) 64 km
 (c) 96 km
 (d) 128 km
- 24. If M is the mass of the earth and R its radius, the ratio of the gravitational acceleration and the gravitational constant is
 - (a) $\frac{R^2}{M}$ (b) $\frac{M}{R^2}$ (c) MR^2 (d) $\frac{M}{R}$
- 25. The height above the surface of earth at which the gravitational fired intensity is reduced to 1% of its value on the surface of earth is
 - (a) $100R_{e}$ (b) $10R_{e}$ (c) $99R_{e}$ (d) $9R_{e}$
- 26. For a satellite orbiting close to the surface of earth the period of revolution is 84 minute. The time period of another satellite orbiting at a height three times the radius of earth from its surface will be
 - (a) $(84) 2\sqrt{2}$ minute (b) (84) 8 minute (c) $(84) 3\sqrt{3}$ minute (d) (84) 3 minute



27. The height from the surface of earth at which the gravitational potential energy of a ball of mass m is half of that at the centre of earth is (where R is the radius of earth)

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

- 28. A body of mass m is lifted up from the surface of earth to a height three times the radius of the earth R. The change in potential energy of the body is
 - (a) 3mgR (b) $\frac{5}{4}mgR$ (c) $\frac{3}{4}mgR$ (d) 2mgR

29. A satellite is revolving around earth in its equatorial plane with a period T. If the radius of earth suddenly shrinks to half its radius without change in the mass. Then, the new period of revolution will be

- (a) 8T (b) $2\sqrt{2}$ T (c) 2T (d) T
- 30. A planet has twice the density of earth but the acceleration due to gravity on its surface is exactly the same as on the surface of earth. Its radius in terms of earth's radius R will be
 - (a) R/4 (b) R/2 (c) R/3 (d) R/8
- 31. The speed of earth's rotation about its axis is ω . Its speed is increased to x times to make the effective acceleration due to gravity equal to zero at the equator, then x is around (g = 10 ms⁻², R = 6400 km)
 - (a) 1 (b) 8.5 (c) 17 (d) 34
- 32. For a planet revolving around sun, if a and b are the respective semi-major and semi-minor axes, then the square of its time period is proportional to
 - (a) $\left(\frac{a+b}{2}\right)^3$ (b) $\left(\frac{a-b}{2}\right)^3$ (c) b^3 (d) a^3



(a)

33. The figure represents two concentric shells of radii R_1 and R_2 and masses M_1 and M_2 respectively. The gravitational field intensity at the point A at distance a ($R_1 < a < R_2$) is



34. A particle is acted upon by a constant force always normal to the direction of motion of the particle. It is therefore inferred that

(A)	Its velocity is constant	(B)	It moves in a straight line
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- (C) Its speed is constant (D) It moves in circular path
- $(a) \qquad a,d \qquad \qquad (b) \qquad c,d \qquad \qquad (c) \qquad a,b \qquad \qquad (d) \qquad a,b,c$
- 35. A car is travelling with linear velocity v on a circular road of radius r. If it is increasing it speed at the rate of 'a' metre/sec², then the resultant acceleration will be

(a)
$$\sqrt{\left(\frac{v^2}{r^2} - a^2\right)}$$
 (b) $\sqrt{\left(\frac{v^4}{r^2} + a^2\right)}$ (c) $\sqrt{\left(\frac{v^4}{r^2} - a^2\right)}$ (d) $\sqrt{\left(\frac{v^2}{r^2} + a^2\right)}$

36. A string can bear a maximum tension of 100 Newton without breaking. A body of mass 1 kg is attached to one end of 1 m length of thin string and it is revolved in a horizontal plane. The maximum linear velocity which can be imparted to the body without breaking the string, will be



37. A particle moving along a circular path with a speed (v) and its speed increases by 'g' per second. If the radius of the angular path bar (r), than the set acceleration of the particle is

(a)
$$\left(\frac{v^2}{r} + g\right)$$
 (b) $\left(\frac{v^2}{r} + g^2\right)$ (c) $\left(\frac{v^4}{r^2} + g^2\right)^{1/2}$ (d) $\left(\frac{v^2}{r} + g\right)^{1/2}$

38. A pendulum bob has a speed 3 m/s while passing through its lowest position, length of the pendulum is 0.5 m then its speed when it makes an angle of 60° with the vertical is

(a)
$$2 \text{ m/s}$$
 (b) 1 m/s (c) 4 m/s (d) 3 m/s

39. The mass of the bob of a simple pendulum of length L s m. If the bob is left from its horizontal position then the speed of the bob and the tension in the threads in the lowest position of the bob will be respectively.



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

40. If the speed and radius both are tripled for a body moving on a circular path, then the new centripetal force will be

(a) $F_2 = 2F_1$ (b) $F_2 = F_1$ (c) $F_2 = 3F_1$ (d) $F_2 = F_1/3$

41. The blades of an aeroplane propeller are rotating at the rate of 600 revolutions per minutes its angular velocity is

- (a) $10 \pi \text{ rad/s}$ (b) $20 \pi \text{ rad/s}$ (c) $2 \pi \text{ rad/s}$ (d) None of these
- 42. A stone tied to the end of a string 80 cm long is whirled in a horizontal circle with a constant speed. If the stone makes 14 revolutions in 22 s than the acceleration of the stone is
 - (a) 5 m/s^2 (b) 10 m/s^2 (c) 12.8 m/s^2 (d) None of these



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

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

44. If the radius of circular path of two particles of same masses are in the ratio of 1 : 2 and have equal centripetal force their velocities should be in the ratio of

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

- 45. A car is travelling at 20 m/s on a circular road of radius 100 m. It is increasing in speed at the rate of 3 m/s^2 . It acceleration is
 - (a) 3 m/s^2 (b) 4 m/s^2 (c) 5 m/s^2 (d) 7 ms^{-1}
- 46. A small mass of 10 gm. Lies in a hemispherical bowl of radius 0.5 m at a height of 0.2 m from the bottom of the bowl. The mass will be in equilibrium of the bowl rotates at an angular speed of $(g = 10 \text{ m/sec}^2)$



 $\sqrt{20}$ rad/s

(d)

- 47. In rotational motion of a rigid body, all particle move with
 - (a) Same linear and angular velocity

 $\frac{10}{\sqrt{3}}$ rad/s

(a)

- (b) Same linear and different angular velocity
- (c) With different linear velocities and same angular velocities
- (d) With different linear velocities and different angular velocities
- 48. The angular speed of a fly-wheel making 120 revolution/minute is

(a)	π rad/sec	(b)	2π rad/sec	(c)	4π rad/sec	(d)	$4\pi^2$ rad/sec			
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- 49. A flywheel gains a speed of 540 r.p.m. in 6 sec. Its angular acceleration will be
 - (a) $3\pi \text{ rad/sec}^2$ (b) $9\pi \text{ rad/sec}^2$ (c) $18\pi \text{ rad/sec}^2$ (d) $54\pi \text{ rad/sec}^2$
- 50. A car is moving at a speed of 72 km/hr, the diameter of its wheels is 0.5 m. If the wheels are stopped in 20 rotations by applying brakes, then angular retardation produced by the brakes is

(a) -25.5 rad/s^2 (b) -29.5 rad/s^2 (c) -33.5 rad/s^2 (d) -45.5 rad/s^2



Date: 20.11.2022

ARJUNA BATCH

CHEMISTRY : REVISION TEST 3 (SET B)

Topics: Mole Concept, Redox Reaction, Periodic Properties, S Block, Hydrogen, Atomic Structure, Gaseous States and Chemical Equilibrium

51.	BeO, A	Al_2O_3 , SnO_2 , SiO_2 , S	b_2O_3 , Pt	oO are	oxides			
	(a)	Amphoteric oxides	8		(b)	Basic		
	(c)	Acidic			(d)	Neutra		
52.	The ion	nization potential of	an elem	ent is 5.23 eV. Thi	s can also	be expressed as	K.cals/n	nole
	(a)	120.6	(b)	60.3	(c)	241.2	(d)	180.9
53.	Tritiun	n emits						
	(a)	α - particle	(b)	positron	(c)	β - particle	(d)	neutron
54.	Therma	al energy order is						
	(a)	solids > liquids > g	gases		(b)	solids > liquids < ga	ises	
	(c)	solids < liquids > g	gases		(d)	solids < liquids < ga	ises	
55.	Supero	xide of type MO ₂ and	re forme	d by all except				
	(a)	Potassium	(b)	Beryllium	(c)	Strontium	(d)	Barium
56.	The alk	kali metal bicarbona	te that h	as no existence in s	olid state	is		
	(a)	NaHCO ₃	(b)	KHCO ₃	(c)	LiHCO ₃	(d)	All



- 57. 2 mole each of CH_3OH & CH_3COOH are taken and heated in the presence of con H_2SO_4 so that equilibrium is established. If K_C for esterfication process is 4, mass of ester present at equilibrium (in gm) is
 - (a) 98.42 g (b) 56.3 (c) 224.0 (d) 37.2
- 58. One mole of N_2H_4 loses 10 moles of electrons to form a new compound 'X'. Assuming that all the nitrogen appears in the new compound, the oxidationstate of nitrogen in X is (There is no change in the oxidation number of hydrogen)
 - (a) -1 (b) -3 (c) +3 (d) +5
- 59. $CuSO_4 \cdot 5H_2O$ is represented as
 - (a) $[Cu(H_2O)_5]SO_4$ (b) $[Cu(H_2O)_3SO_4] \cdot 2H_2O$
 - (c) $[Cu(H_2O)_4]SO_4 \cdot H_2O$ (d) All of these
- 60. A potter wishes to make a deep blue glaze. Which one of these available chemicals should be mixed?
 - (a) Cuprous oxide (b) Nickel oxide (c) Cobalt oxide (d) Iron oxide
- 61. Identify the incorrect statement regarding black body radiation.
 - (a) As ' λ ' increases intensity first increases and then decreases
 - (b) The temperature $T_2 > T_1$
 - (c) As temperature increases, the λ corresponding to maximum intensity increases
 - (d) At maximum wavelength, intensity is minimum
- 62. The second ionization potential is
 - (a) Less than the first ionization potential (b) Equal to the first ionization potential
 - (c) Greater than the first ionization potential (d) None of these
- 63. Equal amounts of two gases of molecular weight 4 and 40 are mixed. The pressure of the mixture is 1.1 atm. The partial pressure of the light gas in this mixture is
 - (a) 0.55 atm (b) 0.11 atm (c) 1 atm (d) 0.12 atm

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Learning	with the	Speed of Mumbai <mark>and</mark>	the Tradi	tion of Kota				
64.	The thi	ird virial coefficient	of a He	gas is 4×10^{-2} (lit/mo	$(ol)^2$, then	n what will be volume	of 2 mo	ble He gas at NTP?
	(a)	22.0 lit	(b)	44.0 lit	(c)	44.8 lit	(d)	45.3 lit
65.	The us	eful bye-products, o	obtained	in the Solvay process	s of man	ufacturing sodium car	rbonate	are
	(a)	Quick lime and CO	O_2		(b)	NaHCO ₃ and NH ₄ C	1	
	(c)	NH ₄ Cl solution an	d quick	lime	(d)	NaHCO ₃ and CO ₂		
66.	Surface amoun	e tension of water a t of work done will	nt 25° C be	is $7.2 \times 10^{-2} \text{ Nm}^{-1}$. I	n order	to increase surface an	rea of w	ater by 100 cm ² , the
	(a)	$7.2\times10^{-4}~J$	(b)	7.2 J	(c)	72 J	(d)	0.72 J
67.	The fo	llowing facts are ava	ailable					
	2X ⁻ +	$Y_2 \rightarrow 2Y^- + X_2$						
	2W ⁻ +	$Y_2 \rightarrow No reaction$						
	$2Z^{-} + Z$	$X_2 \rightarrow 2X^- + Z_2$						
	Which	of the following sta	tements	is correct				
	(a)	$E^0_{W^-/W_2} > E^0_{Y^-/Y_2}$	$_{Y_2} > E_X^0$	$E_{Z^{-}/Z_{2}}^{0} > E_{Z^{-}/Z_{2}}^{0}$	(b)	$E^0_{W^-/W_2} < E^0_{Y^-/Y_2}$	< E ⁰ _{X⁻}	$(X_2 < E_{Z^-/Z_2}^0)$
	(c)	$E^0_{W^-/W_2} < E^0_{Y^-/Y_2}$	$_{Y_2} > E_X^0$	$E_{Z^{-}/Z_{2}}^{0} > E_{Z^{-}/Z_{2}}^{0}$	(d)	$E^0_{W^-/W_2} > E^0_{Y^-/Y_2}$	$< E_{X^{-}}^{0}$	$X_{2} < E_{Z^{-}/Z_{2}}^{0}$
68.	Maxim	num density of heav	y water i	is at				
	(a)	0° C	(b)	11.6° C	(c)	4° C	(d)	3.2° C
69.	Which	of the following all	kaline ea	rth metal nitrate does	not have	e water of crystallisat	ion?	
	(a)	$Ca(NO_3)_2$	(b)	$Mg(NO_3)_2$	(c)	$Sr(NO_3)_2$	(d)	$Ba(NO_3)_2$



70.	1 gran	n of a carbonate (M	$(_2CO_3)$ or	ntreatment with exces	ss HCl p	produces 0.01186 mol	e of CO	O_2 . The molar mass of
	M ₂ CC	$P_3 \ln g \mod 1$ is	<i>a</i> .					.
	(a)	118.6	(b)	11.86	(c)	1186	(d)	84.3
71.	Which	n of the following is	electron	rich covalent hydride	e?			
	(a)	KH	(b)	CH_4	(c)	NH ₃	(d)	TiH
72.	Which	n of the following sa	lt gives	golden yellow colour	in flame	e test		
	(a)	KCl	(b)	LiCl	(c)	NaCl	(d)	CsCl
73.	The el	ectronic transition t	hat emits	s maximum energy is	[n = rej	presents orbit]		
	(a)	$n_5 ightarrow n_4$	(b)	$n_4 \rightarrow n_3$	(c)	$n_2 \rightarrow n_1$	(d)	$n_3 \rightarrow n_2$
74.	If a sh	ell is having 'g' subs	shell whi	ch is correct statemer	nt about	principal quantum n	of this sh	nell
	(a)	$n \leq 5$			(b)	$n \ge 5$		
	(c)	n = 5			(d)	Cannot be determin	ed	
75.	5 g of	zinc is treated separ	rately wi	th an excess of				
	(a)	dilute hydrochlor	ic acid ai	nd				
	(b)	aqueous sodium h	ydroxid	2.				
	(b) The ra	aqueous sodium h atio of the volumes of	ydroxido of H ₂ evo	e. lved in these two rea	ctions is	:		
	(b) The ra (a)	aqueous sodium h atio of the volumes o 1 : 4	ydroxido of H ₂ evo (b)	e. olved in these two rea 1 : 2	ctions is (c)	2:1	(d)	1:1
76.	(b) The ra (a) Which	aqueous sodium h atio of the volumes o 1 : 4 n of the following is	ydroxid of H ₂ evo (b) expected	e. olved in these two rea 1 : 2 d to have zero electro	ctions is (c) n affinit	2:1 y?	(d)	1:1
76.	 (b) The rational (a) Which (a) 	aqueous sodium h atio of the volumes of 1:4 n of the following is Oxygen	nydroxido of H ₂ evo (b) expected (b)	e. olved in these two rea 1 : 2 d to have zero electro Fluorine	ctions is (c) n affinit (c)	2 : 1 y? Nitrogen	(d) (d)	1 : 1 Neon
76. 77.	 (b) The ratio (a) (a) (a) The ret 	aqueous sodium h atio of the volumes of 1:4 n of the following is Oxygen eaction of aqueous k	ydroxido of H ₂ evo (b) expected (b) XMnO4 v	e. olved in these two rea 1 : 2 d to have zero electro Fluorine with H ₂ O ₂ in acidic co	ctions is (c) n affinit (c) nditions	2 : 1 y? Nitrogen gives :	(d) (d)	1 : 1 Neon
76. 77.	 (b) The rational structure (a) Which (a) The retained structure (a) 	aqueous sodium h atio of the volumes of 1 : 4 n of the following is Oxygen eaction of aqueous k Mn ⁴⁺ and O ₂	ydroxido of H ₂ evo (b) expected (b) XMnO ₄ v (b)	e. olved in these two rea 1:2 d to have zero electro Fluorine with H ₂ O ₂ in acidic co Mn ²⁺ and O ₂	ctions is (c) n affinit (c) nditions (c)	2:1 y? Nitrogen gives: Mn^{2+} and O_3	(d) (d) (d)	1:1 Neon Mn^{4+} and MnO_2



78. 81.4 g sample of ethyl alcohol contains 0.002 g of water. The amount of pure ethyl alcohol to the proper number of significant figures is

	(a)	81.398 g	(b)	71.40 g	(c)	91.4 g	(d)	81 g
79.	Sodium	peroxide which is	a yellow	solid, when exposed	to air be	ecomes whitedue to th	ne forma	tion of
	(a)	H_2O_2	(b)	Na ₂ O	(c)	Na ₂ O and O ₃	(d)	NaOH and Na ₂ CO ₃
80.	The per	riod number in the l	ong form	n of the periodic table	e is equa	l to		
	(a)	magnetic quantum	number	of any element of the	e period			
	(b)	atomic number of a	any elen	nent of the period				
	(c)	Principal quantum	number	of outer most shell of	f any ele	ement		
	(d)	maximum Azimuth	nal quan	tum number of any el	lement o	of the period		
81.	0.24 g substan	of a volatile subst ce is	ance up	oon vaporisation, giv	es 45 m	nl of vapour at STP.	The va	pour density of the
	(a)	5.993	(b)	59.93	(c)	95.39	(d)	95.93
82.	Which	one of the following	g compo	unds is a peroxide?				
	(a)	KO ₂	(b)	BaO ₂	(c)	MnO ₂	(d)	NO_2
83.	Of the f	four oxyacids of chl	orine th	e strongest oxidising	agent in	dilute aqueous solution	on is	
	(a)	HClO ₄	(b)	HClO ₃	(c)	HClO ₂	(d)	HOCl
84.	In the h	ardening stage of pl	laster of	paris, the compound	formed	is		
	(a)	$CaSO_4$			(b)	Orthorhombic CaSC	$D_4 \cdot 2H_2C$)
	(c)	$CaSO_4H_2O$			(d)	Monoclinic CaSO ₄ .	$2H_2O$	
85.	Be ²⁺ is	isoelectronic with w	which of	the following ions?				
	(a)	Li ⁺	(b)	Na ⁺	(c)	Mg^{2+}	(d)	$\mathrm{H}^{\scriptscriptstyle +}$



Learning with the Speed of Mumbai and the Tradition of Kota

- 86. The number of naturally occurring p-block elements that are diamagnetic
 - (a) 18 (b) 6 (c) 5 (d) 7
- 87. The equivalent weight of Mohr's salt, $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$ is equal to
 - (a) Its molecular weight (b) Atomic weight
 - (c) Half its molecular weight (d) One-third its molecular weight.
- 88. Larger number of oxidation states are exhibited by the actinoids than those bythe lanthanoids. This can be best explained as
 - (a) Lesser energy difference between 5f and 6d than between 4f and 5dorbitals
 - (b) More energy difference between 5f and 6d than between 4f and 5d orbitals
 - (c) More reactive nature of the actinoids than the lanthanoids
 - (d) 4f orbitals more diffused than the 5f orbitals
- 89. Which of the following reactions represents water gas shift reaction?

(a)
$$CO_{(g)} + H_2O_{(g)} \xrightarrow{673K} CO_2 + H_2$$

(b)
$$C_{(s)} + H_2O_{(g)} \xrightarrow{1270K} CO_{(g)} + H_2$$

(c)
$$CH_4 + H_2O_{(g)} \xrightarrow{1270K} CO_{(g)} + 3H_{2(g)}$$

- (d) None of these
- 90. If the electronegativity difference between bonded atoms is exactly 1.7 the nature of bond formed is
 - (a) > 50% Ionic (b) < 50% Ionic
 - (c) 50% Ionic & 50% covalent (d) 100% Ionic
- 91. Lothar Meyer obtained the curve for the known elements by plotting theiratomic volumes against

(a)	atomic numbers	(b)	atomic masses	(c)	densities	(d)	ionization energies
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Learning with the Speed of Mumbai and the Tradition of Kota

Critical temperature (K)

92.	How m	many number of pairs of elements exhibit diagonal relationship. 2 (d) ϵ									
	(a)	2	(b)	4			(c)	3		(d)	6
93.	One lit	tre of a gas weighs	2 g at	300 k	K and 1	atm pre	essure.]	lf the	e pressure ismad	e 0.75 a	atm, at which of the
	followi	ng temperatures wil	l one lit	re of t	the same	e gas we	igh one	gran	n		
	(a)	450 K	(b)	600]	К		(c)	800) K	(d)	900 K
94.	When a	an ideal gas undergo	es unres	straine	ed expan	nsion, no	o cooling	g occ	curs because the r	nolecule	28
	(a)	Are above the inve	rsion te	mpera	iture		(b)	Exe	ert no attractive f	orce on	each other
	(c)	Do work equal to l	oss in k	inetic	energy		(d)	Col	llide without loss	of energ	gу
95.	Chloro	phyll, the green com	ponent	of pla	ints con	tains					
	(a)	Ca ²⁺	(b)	Be ²⁺			(c)	Mg	2+	(d)	Ba ²⁺
96.	The po	larising ability of wl	nich one	e of the	e follow	ving is th	e highe	st			
	(a)	Small highly +ve i	on				(b)	Laı	rge +ve ion		
	(c)	Small highly -ve io	on				(d)	Laı	rge -ve ion		
97.	Electro	magnetic radiation v	vith ma	ximun	n wavel	ength is					
	(a)	Ultraviolet	(b)	Radi	io wave		(c)	X-r	ray	(d)	Infrared
98.	On the of char	basis of data given book basis of data given b	pelow p	redict	which	of the fo	llowing	gase	es shows least ads	sorption	on a definite amount
	Gas		CO	D_2	SO_2	CH ₄	H ₂				

(a)	CO_2	(b)	SO_2	(c)	CH_4	(d)	H_2

630

304

Space for Rough Work

190

33



- 99. A pair of gases having same number of molecules are
 - (a) 22 g of CO and 72 g of N (b) 11 g of CO and 28 g of N
 - (c) 44 g of CO and 7 g of N (d) 11 g of CO and 7 g of N

100. Atomic radius of "Li" is 1.52A° and ionic radius of "Li⁺" is 0.76A°. The % ofvolume occupied by 2s electron is

(a) 50% (b) 79% (c) 66% (d) 94%



Max. Marks:100



Date: 20.11.2022

ARJUNA BATCH

PHYSICS : REVISION TEST 3 (SET B)

Topics: Ray Optics, Circular Motion, Gravitation, Wave Optics, Rotational Motion and Elasticity

Answer Key

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





Date: 20.11.2022

ARJUNA BATCH

CHEMISTRY : REVISION TEST 3 (SET B)

Topics: Mole Concept, Redox Reaction, Periodic Properties, S Block, Hydrogen, Atomic Structure, Gaseous States and Chemical Equilibrium

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

Answer Key