NOTE	Four possible answers are given against each question in columns A, B, C and D. Select the right answer and on the separate Answer Sheet , fill the circle A,B,C or D with pen or marker in front of that question number.

CH#12(Electrostatics)

S.#	QUESTIONS	A	B	C	D
1	Metals are good conductors of electricity because they have	Large number of bounded electrons	small number of bounded electrons	Large number of free electrons ✓	small number of free electrons
2	Two oppositely charged balls A & B attract third ball C when placed near them turn by turn. Then ball C must be	Positively charged	Electrically neutral	Negatively charged	Both (a) & (c) ✓
3	Free electrons are	Tightly bound	fixed	Strongly fixed	Loosely bound ✓
4	SI unit of charge is	calorie	ampere	volt	Coulomb ✓
5	The number of free electrons in one coulomb charge is	zero	1.6×10^{-19}	6.2×10^{20}	6.2×10^{18} ✓
6	If the atomic number of copper is 29, the contribution of electrons per atom in the block of copper will be	2	3	0	1 ✓
7	Charge on an electron was determined by	Ampere	Maxwell	Millikan ✓	Thompson
8	by	Physical balance	Common balance	Cavendish balance	Torsion balance
9	If the distance between two charges is doubled, the electric forc between them will become	$F=2(kq_1q_2/r^2)$	$F=1/2(kq_1q_2/r^2)$	$F=4(kq_1q_2/r^2)$	$F=1/4(kq_1q_2/r^2)$ ✓
10	If the distance between two charges is doubled, the electric force between them will become	Four times	One half	twice	One fourth ✓
11	The electric force between two charges placed in air is 2N. when placed in a medium of $\varepsilon_r=80$, the force reduces to	0.019	0.03	0.029	0.025 ✓
12	The force in medium of relative permittivity ε_r is given by	$F_{med}= \varepsilon_r /F$	$F_{med}=F\ \varepsilon_r$	$F=F_{med} / \varepsilon_r$	$F_{med}=F/ \varepsilon_r$ ✓
13	Electric charge of 100μC is 13cm apart from another charge 16.9μC. The force between them in Newton is	9×10^{7} N	9×10^{5} N	90 N	900 N ✓
14	The force b/w two point charges in air or vacuum is F. if air or vacuum is replaced by an insulator of relative permittivity ε_r the force b/w charges	Remains constant	Becomes infinite	increases	decreases ✓
15	Value of dielectric constant for air or vacuum is	Greater than one	Less than one	zero	one ✓
16	The electrostatic force of repulsion between two electrons at a distance of one meter is	1.8 N	2.30×10^{-9} N	2.30×10^{-27} N	2.30×10^{-28} N ✓

17	The magnitude of charge on an electron is	$1.6x10^{10}C$	$1.6x10^{-10}$ C	$1.6x10^{19}$ C	$1.6x10^{-19}$ C✓
18	Concept of electric field theory was introduced by	Lenz	Coulomb	Joseph Henry	Michael Faraday✓
19	Force experienced by a unit positive charge placed at a point in an electric field is known as	Capacity	Electric potential	Magnetic field	Electric field intensity✓
20	The force per unit charge is known as	Electric flux	Electric potential	Electron volt	Electric field intensity✓
21	The SI unit of electric field intensity(strength) **E** is	Nm^2	Nm^2C^{-2}	$N^{-1}m^{-2}C^2$	N/C✓
22	**E =**	F/r^2	q/F	Fq	F/q✓
23	An electric field can deflect	Neutrons	Gamma rays	x-rays	Alpha particles✓
24	An electric field can not deflect	Alpha particles	Electrons	Protons	x-rays✓
25	The electric field will be uniform	Near a positive p int blogspot com charge	Near a negative point	near two oppositely charged bodies	b/w two oppositely charged parallel metal plates✓
26	Electric field intensity due to a point charge at distance r is equal to	$4\pi\epsilon_0(q/r)$	$\epsilon_0/4\pi(q^2/r)$	$4\pi/\epsilon_0(q/r^2)$	$q / 4\pi\epsilon_0r^2$✓
27	Electric flux is given by the formula	EA/sinθ	**ExA**	EAcosθ	**E.A**✓
28	intensity TaleemTutor . Electric flux through any surface depend on	ea of the surface	direction of the surface	electric field intensity	All of above✓
29	According to gauss's law , the flux through any closed surface is	$\Phi=1/Q\varepsilon_0$	$\Phi=\varepsilon_0/Q$	$\Phi=Q\varepsilon_0$	$\Phi=Q/\varepsilon_0$✓
30	Gauss's law can only be applied to a---------- surface	Curved	flat	closed	Any shape✓
31	Which of the following can be taken as measure of electric fie d	$\Phi=Q/A$	F/A	Q/ε_0A	Φ/A✓
32	When a surface is held parallel to **E** then flux is	infinite	maximum	negative	zero✓
33	SI unit of electric flux is	N/C	Nm^2C^{-2}	$N^{-1}m^{-2}C^2$	$NC^{-1}m^2$✓
34	Electric field intensity due to an infinite sheet of charge is given by	$E=\epsilon_0/\sigma$	$E=\sigma\epsilon_0$	$E=\sigma/\epsilon_0$	$E=\sigma/2\epsilon_0$✓
35	Electric field intensity between oppositely charged parallel plates	$E=\epsilon_0/\sigma$	$E=\sigma\epsilon_0$	$E=\sigma/2\epsilon_0$	$E=\sigma/\epsilon_0$✓
36	A potential difference b/w two points is one volt. The amount of work done in moving a charge of one coulomb from one point to another is	One coulomb	one electron volt	One erg	One joule✓
37	The SI unit of potential difference is	Ampere	Coulomb	Joule	volt✓
38	Electric potential energy per unit charge is also called	Electric field	Electric intensity	Electric field	Electric potential✓
39	The electric potential at a point due to a point charge is given by V=	Kqr^2	Kq/r^2	Kqr	Kq/r✓

40	Electric flux due to point charge is	$1/ q\epsilon_0$	ϵ_0 /q	$q\epsilon_0/r$	q/ ϵ_0 ✓
41	If an electron is accelerated through a potential difference of one volt it will acquire energy	Ve^2	E/V	V/2	Ve ✓
42	Electron volt is the unit of	Electric flux	Potential difference	Electric potential	energy ✓
43	Electron energy is one electron volt when it is accelerated through a potential difference of	One erg	One coulomb	One joule	One volt ✓
44	The magnitude of electric field between two point can be calculated by the relation	$\Delta V=Ed^2$	$\Delta V=Ed$ ✓	$\Delta V=d/E$	$\Delta V=E/d$
45	The potential of all the points of a equi potential surface is	infinite	different	zero	same ✓
46	Farad is the unit of	Potential difference	current	charge	capacitance ✓
47	The SI unit of electric potential is	Ampere	Coulomb	Joule	volt ✓
48	Unit of electric field intensity is	Newton x meter	meter/volt	Volt x meter	Volt/meter ✓
50	For a capacitor , the charge per unit volt is called	Dielectric c nstant	Charge density	permittivity	capacitance ✓
51	Capacitance of a parallel plate capacitor depends on	A	ϵ_0	d	All of above ✓
52	Capacitance of a parallel plate capacitor is given by	$C=d/A\ \epsilon_0$	$C=\epsilon_0/Ad$	$C=A\ \epsilon_0 d$	$C=A\ \epsilon_0/d$ ✓
53	The copying process is called	angiography	topography	photography	Xerography ✓
54	A 50μF capacitor has a potential difference of 8V cross it. The charge on the capacitor is	$6.25x10^{-6}C$	$4x10^{-6}C$	$4x10^{-3}C$	$4x10^{-4}C$ ✓
55	Capacitance of a parallel plate capacitor does not depend on	A	ϵ_0	d	Material of the plates ✓
56	Three capacitors of capacitance 1μ farad each are connected in series. Their equivalent capacitance is	0.03 μF	9μF	3 μF	1/3 μF ✓
57	Energy stored in a capacitor is given by the formula	$2\ CV^2$	C/V^2	CV^2	$CV^2/2$ ✓
58	If a slab of dielectric is inserted b/w the plates of a parallel plate capacitor connected across a battery. its stored energy	Becomes infinite	Remains constant	decreases	increases ✓
59	1 micro coulomb is equal to	10^{-3} coulomb	10^{-12} coulomb	10^{-9} coulomb	10^{-6} coulomb ✓
60	When a dielectric is placed in an electric field it	Gets uncharged	Gets unpolarized	Gets charged	Gets polarized ✓
61	4 μF & 2 μF are connected in series, their equivalent capacitance is	2 μF	6 μ F	0.75 μF	1.3 μF ✓
62	Two 50 μF capacitors are connected in parallel their equivalent capacitance	1 μF	25 μF	50 μF	100 μF ✓
63	In a charged capacitor energy resides in the form of	Nuclear field	Gravitational	Magnetic flied	Electric field ✓

			field		
64	If a dielectric is inserted b/w the plates of a charged capacitor, its capacitance	Becomes infinite	Remains constant	decreases	increases ✓
65	Selenium is an insulator in the dark but when exposed to light it becomes	Remains insulator	semiconductor	Super conductor	conductor ✓
66	special dry black powder is spread over the drum of photocopier is called	neutralizer	Photo powder	turner	toner ✓
67	Photo copier and the inkjet printer are examples of	electricity	magnetism	electromagnetism	electrostatics ✓
68	Since selenium becomes conductor in light it is called	Photo diode	Photo tube	photocell	Photo conductor ✓
69	Charge on an electron was measured by Millikan in	1920	1909 ✓	1905	1900
70	Electric field intensity inside a hollow charged sphere is	minimum	infinity	maximum	zero ✓
71	speed of charging and discharging of a capacitor depends on resistance &	charge	Potential difference	current	capacitance ✓
72	In a charged capacitor the energy resides in	Dielectric	Positive plate	Negative plate	Field b/w plates ✓
73	Electric flux due to a point charge q present inside a closed surface can be calculated by	Lenz's law	Coulomb's law	Ohm's law	Gauss's law ✓
		.			
75	The charge on the droplet in Millikan experiment is calculated by formula	Q=V/mgd	Q=mg/dv	Q=d/mgv	Q=mgd/V ✓
76	The relation (ΔV/Δr=V/d) represents	Gauss's law	Electric flux	Potential difference	Electric field intensity ✓
77	Farad =	Joule/ coulomb	Volt/Coulomb	Coulomb x volt	Coulomb/volt ✓
78	Unit of capacitance is	Joule/ coulomb	Volt/Coulomb	Coulomb x volt	Coulomb/volt ✓
79	Dielectric is also called	Super conductor	Semi conductor	conductor	insulator ✓
80	If a charged body is moving against the electric field it will gain	Potential energy	Mechanical energy	Kinetic energy	electrical Potential energy ✓
81	Xerography means	average	Breaking down	Liquid writing	Dry writing ✓
82	The term RC has the same unit as that of (RC=)	$1/t^2$	t^2	1/t	t ✓
83	One electron volt is equal to	$1.6x10^{-19}J$ ✓	$1.6x10^{19}J$	$6.25x10^{-18}J$	$6.25x10^{18}J$
84	Energy density in case of capacitor is always proportional to	C	E^2 ✓	V^2	ϵ_0
85	Presence of dielectric always	Increase the electrostatic force	decrease the electrostatic	double the electrostatic force	Does not affect the electrostatic

			force		force
86	The electric field created by positive charge is	Radially outward	Radially inward	circular	zero
87	The minimum charge on an object can not be less than	1C	$1.6x10^{-19}C$	$1.6x10^{19}C$	none
88	Two point charges +2C and +6C repel each other if a charge 0f -2C is given to each of them then electrostatic force between them is	0N	$8x10^{9}$ N (attractive)	$108x10^{9}$ N (repulsive)	$12x10^{9}$N (attractive and repulsive)
89	The unit of energy density of electric field is	J/C	J/V	J/m^3	J/F^3
90	For the computation of electric flux, surface area should be	Flat	Curved	Inclined	spherical

Ch#13(Current Electricity)

S.#	QUESTIONS	A	B	C	D
1	Through metallic conductor the current is because of flow of	photons Potential	neutrons	Positive charges	electrons
2	The charge per unit time through any cross-section of a conductor is called	energy blogspot .com	Electric power	capacitance	current
3	I=	ΔQ/ΔI	Δt/ΔQ	ΔQxΔt	ΔQ/Δt
4	One Coulomb/sec =	Ohm	capacitance	volt	ampere
5	S.I unit of electric current is	Ohm	coulomb	voltage	Ampere
6	If 1 ampere current flows through 2m long conductor, the charge flow. through this conductor in 1 hour will be	1 C	2 C	7200 C	3600 C
7	The graphical representation of Ohm's law is	hyperbola	parabola	Ellipse	Straight line
8	ΔQ=	1/(ΔQ/Δt)	ΔI+Δt	Δt/ΔI	ΔIxΔt
9	I=	V^2R	VR	R/V	V/R
10	Ohm is the unit	resistivity	conductance	current	resistance
11	Ohm is defined as	Coulomb / volt	Volt / coulomb	Volt x ampere	Volt/ampere
12	V=IR represents	Coulomb's law	Faraday's law	Ampere's law	Ohm's law
13	If the resistance of a conductor is increased then current	Becomes zero	Remains constant	increases	decreases
14	R=	LA/ρ	ρ/LA	A/ ρL	ρL/A
15	ρ =	R/AL	LR/A	L/RA	AR/L
16	The resistance of a meter cube of a material is called its	resistance	conductance	conductivity	resistivity
17	Reciprocal of resistance is called	capacitance	resistivity	conductivity	conductance
18	SI unit of resistivity is	1/ Ohm-meter	meter/ Ohm	Ohm/meter	Ohm-meter
19	A wire of uniform area of cross section "A", length "L" and resistance "R" is cut into two equal parts. The resistivity of each part	Is one-fourth	Becomes half	doubles	Remains same

20	The resistance of a conductor does not depend on its	Area	length	temperature	Mass ✓
21	Reciprocal of resistivity of a material is called	capacitance	resistance	conductance	conductivity ✓
22	The conductance of a conductor increases by	Increasing temperature	Decreasing area of cross-section	Increasing length	Decreasing temperature ✓
23	Resistance of a substance of one meter in length and one square meter in cross section is called	resistance	conductance	conductivity	resistivity ✓
24	Which of the following materials is useful for making standard resistance	Tungsten	Copper	Nichrome	constantan ✓
25	When the temperature of a conductor is increased its resistance	Becomes Zero	Remains same	decreases	increases ✓
26	Resistance of a conductor increases with increase in	Area of cross-section	diameter	Mass	length ✓
27	The resistance of the conductor increases due to the rise of temperature of a conductor , because the collision cross section of the atoms	Becomes zero	Remains unchanged	decreases	increases ✓
28	The current through a resistor of 100 Ohm when connected across a source of 220 V	0.45 A com	200 A	220000 A	2.2 A ✓
29	The temperature coefficient of resistance α=	$(R - R_0)/t$	$(R_t - R_0)/R_0$	$(R_t + R_0)/R_0t$	$(R_t - R_0)/R_0t$ ✓
30	The temperature coefficient of resistivity α=	$(\rho_t - \rho_0)/t$	$(\rho_t - \rho_0)/\rho_0$	$(\rho_t + \rho_0)/\rho_0t$	$(\rho_t - \rho_0)/\rho_0t$ ✓
31	SI unit of temperature coefficient of resistivity is	Ohm^{-1}	Ohm	K	K^{-1} ✓
32	The potential difference across each resistance in series combination is	·maximum	zero	same	different ✓
33	Two resistors of 2 ohm & 4 ohm are connected in parallel their equivalent resistance is	4 Ohm	6 Ohm	1.5 Ohm	1.33 Ohm ✓
34	Three resistors of resistance 2,3 and 6 Ohms are connected in parallel the equivalent resistance will be	11 Ohm	3 Ohm	5 Ohm	1 Ohm ✓
35	Three resistances 5000, 500 and 50 Ohms are connected in s ries across 555 volts main. The current flowing through them will be	10 mA	1 A	10 A	100 mA ✓
36	Why should different resistances be added in series in a circuit	To decrease voltage	To increase voltage	to divide voltage ✓	None of these
37	P=	I^2/R	RI^2t	I^2V	I^2R ✓
38	Heat generated by a 40 Watt bulb in one hour is	4800 J	1440 J	14400 J	144000 J ✓
39	How will you calculate power from current I and Voltage V	I^2/R	R/I^2	I^2V	VI ✓
40	Electrical energy is measured in	Kilo watt	Horse power	watt	Kilowatt hour ✓
41	A 100 watt bulb is operated by 200 volt, the current flowing through the bulb is	2.5 ampere	Zero ampere	1 ampere	0.5 Ampere ✓
42	The resistance of a 60 watt bulb in a 120 volt line is	0.5 Ohms	2 Ohms	20 Ohms	240 Ohms ✓
43	Electrical energy is given by the formula	I^2R	VIt	IRT	I^2Rt ✓

44	1 kilo watt hour is equal to	360000 J	3.6 x 10^5 J	3.6 x 10^7 J	3.6 x 10^6 J ✓
45	If a 40 watt light bulb burns for 2 hours how much heat is generated	400 J	80 J	280 x 10^5J	288 x 10^3J ✓
46	Which one of the following bulb has least resistance	100 watt	200 watt	500 watt	1000 watt ✓
47	A fuse is placed in series with the line wire of house circuit to protect against	Over heating	High voltage	high power	High current ✓
48	A 1000 watt heater operates on a 220 volt line for one hour. The current passing through the heater is	6.5 A	5 A	7 A	4.5 A ✓
49	The electromotive force of a battery or cell is the voltage b/W its terminals when	Its internal resistance is maximum	Its internal resistance is minimum	Circuit is closed	Circuit is open ✓
50	Electromotive force is given by the formula	E=W^2/q	E=qW	E=q/W	E= W/ q ✓
51	S.I unit of electromotive force is	Ohm	Coulomb	farad	volt ✓
52	Electromotive force is closely related to	com Inductance	Magnetic flux density	Electric field intensity	Potential difference ✓
53	By electromotive force	S und is produced blogspot	heat is produced	Light is produced	Current is produced ✓
54	Terminal potential difference of a battery is greater than its emf when	TaleemTutor Internal resistance of a battery is infinite	Internal resistance of a battery is zero	Battery is discharged	Battery is charged ✓
55	Batteries convert	Electrical energy into heat energy	Heat energy into chemical energy	Electrical energy into mechanical energy	Chemical energy into electrical energy ✓
56	The charge carriers in electrolyte are	protons	positive ions	negative ions	Both (b) and (c) ✓
57	Electronic current is due to flow of	Positrons	positive ions	protons	electrons ✓
58	SI unit of conductance is	K^{-1}	Ohm-meter	Ohm	mho ✓
59	A conductor which strictly obeys ohm's law is called	Electrolytic resistor	Supper conductor	non-ohmic	Ohmic ✓
60	Semi-conductor diode is an example of	Electrolytic resistor	Supper conductor	Ohmic device	Non-ohmic device ✓
61	The substances having negative temperature co-efficient are	carbon	germanium	Silicon	All of them ✓
62	A carbon resistor consists of --------- colour bands	6	1	2	4 ✓
63	The tolerance of silver band is	5%	±20%	±10% ✓	±5%
64	Rheostat can be used as a	Current source	Potential divider	Variable resistor	Both (b) and (c) ✓

65	The tolerance of gold band is	5%	±20%	±5% ✓	±10%
66	Thermistor is a	Ordinary resistor	constant resistor	variable resistor	Heat sensitive resistor ✓
67	A complex system consisting of a number of resistors can be solved by	Lenz's law	Ohm's law	Joule's law	Kirchhoff's rule ✓
68	Kirchhoff's first law is the manifestation of law of conservation of	Momentum	mass	energy	Charge ✓
69	Resistivity of a material depends on	length	Nature of material ✓	Area of cross section	All of them
70	By increasing the thickness of a wire , its resistance will	Become zero	Remain same	increases	decrease ✓
71	Which of the following metal has the lowest value of temperature co-efficient of resistivity	aluminium	silver	gold	Copper ✓
72	A piece of wire has a resistance R. Another wire of same length and material but twice in diameter has resistance	4	2R	R/4	R/2 ✓
73	Internal resistance is the resistance offered by	Circuit	resistance	conductor	Source of emf ✓
74	Terminal potential difference is always ---------- of battery	Equal	greater than	less than	All of above ✓
75	Wheatstone bridge consists of ---------- resistances	5	2	3	4 ✓
76	A balanced Wheatstone bridge is used to determine	emf	potential difference	current	Unknown resistance ✓
77	The condition for wheat stone bridge is	$R_1/R_3=R_2/X$	$R_1/R_2=X/R_3$	$R_2/R_1=R_3/X$	$R_1/R_2=R_3/X$ ✓
78	Three arms of a balanced wheat stone bridge are of 75 Ohms resistance each. What is the resistance of fourth arm?	75 Ω	225 Ω	150 **Ω**	75 Ω ✓
79	If the resistance in three successive arms of balanced bridge is 1,2 and 36 ohms respectively , the resistance in the fourth arm will be	0.14 Ω	0.05 Ω	72 **Ω** ✓	18 Ω
	A post office box is an apparatus whose construction is based on the principle of a				Wheat stone bridge
81	An instrument which can measure potential without drawing any current is called	ammeter	voltmeter	galvanometer	potentiometer ✓
82	The apparatus used to compare the emf of two cells is	ammeter	voltmeter	galvanometer	potentiometer ✓
83	Which of the following is used to determine the internal resistance of a cell	ammeter	voltmeter	galvanometer	potentiometer ✓
84	Potentiometer can be used as a	ammeter	voltmeter	galvanometer	Potential divider ✓
85	For an open circuit	$\epsilon = V_t + ir$	$\epsilon < V_t$	$\epsilon > V_t$	$\epsilon = V_t$ ✓
86	If there is no fourth band the tolerance is	5%	±10%	±5%	±20% ✓
87	Maximum power out put of a battery is P_{max}=	$E/4r^2$	E/4r	$E^2/4r^2$	$E^2/4r$ ✓
88	Chemical effect of current during electrolysis depends on	Nature of liquid	quantity of	Both (a) & (b) ✓	electrodes

			electricity		
89	A student has 5 resistances each of value is 1/5 ohm. The minimum resistance that can be obtained by combining in parallel is	1/50 ohm	1/25 ohm ✓	1/10 ohm	5 ohm
90	The minimum resistance that can be obtained by combining 50 resistance each 0f ¼ ohm is	200 ohm	1/200 ohm ✓	50/4 ohm	4/50 ohm
91	The colour strip on carbon resistor from extreme left are yellow, black and red its resistance is	4Kohm ✓	400 ohm	40Kohm	40 0hm
92	For electroplating we use	A.C. source	D.C. source ✓	Any source	All of above

CH#14(Electromagnetism)

Sr	Questions	A	B	C	D
1	A current carrying conductor is surrounded by	Gravitational field.	Nuclear field	Electric field	Magnetic field
2	The magnetic field at a point due to a current carrying conductor is directly proportional to	Resistance of conductor	Diameter of conductor	Distance from conductor	Current through conductor ✓
3	Two lines of magnetic force	Cross each other	can Cross each	Always Cross each	Can never Cross
4	The charged particle moving in a magnetic field experiences magnetic force given by	F= q B / V	F= q V / B	F= q **V. B**	**F**= q **V** x **B** ✓
5	Magnetic force on a moving charge is maximum when	$\theta = 0^0$	$\theta = 180^0$	$\theta = 30^0$	$\theta = 90^0$ ✓
6	Magnetic force on a moving charge is minimum when	$\theta = 40^0$	$\theta = 90^0$	$\theta = 30^0$	$\theta = 0^0$ ✓
7	A current carrying conductor is placed in a magnetic field. How	$\theta = 40^0$	$\theta = 90^0$	$\theta = 30^0$	$\theta = 0^0$ ✓
8	The charge moving perpendicular to B experiences	No force	Infinite force	Minimum force	Maximum force ✓
9	force on charged particle moving parallel to magnetic field is	F= q B / V	F= q V / B	F= q V. B	F= 0 ✓
10	The SI unit of magnetic induction is	Weber / meter	Gauss	Weber	Tesla ✓
11	If a charge of one coulomb moving at right angle to a magnetic field with a velocity of one meter per second experiences a force of one Newton , the magnetic induction is said to be	One Henry	One Gauss	One Weber	One Tesla ✓
12	A current carrying conductor placed perpendicular to magnetic field experiences force	0	F=ILBcosθ	F=ILBsinθ	F=ILB ✓
13	Magnetic force on a current carrying conductor is maximum	$\theta = 0^0$	$\theta = 180^0$	$\theta = 30^0$	$\theta = 90^0$ ✓

	when				
14	A current carrying conductor placed parallel to magnetic field experiences force	F=ILB	F=ILBcosθ	F=ILBsinθ	F=0 ✓
15	One tesla is equal to	$1/ NA^{-1}m^{-1}$	NAm	$NA^{-1}m$	$NA^{-1}m^{-1}$ ✓
16	One tesla is equal to	10^2 Gauss	10^4 Gauss	1 Gauss	10^{-4} Gauss ✓
17	A current carrying conductor placed in a magnetic field experiences force	F=IL/B	F=ILBcosθ	F=I/LB	**F=ILxB** ✓
18	Torque on a current carrying conductor placed in a uniform magnetic field is	τ=NIABtanα	τ =NIAB	τ =NIABsinα	τ =NIABcosα ✓
19	Magnetic flux in terms of B and area A is	Φ= BAtanθ	Φ=BAsinθ	Φ= **B** x **A**	Φ= **B.A** ✓
20	SI unit of magnetic flux is (one Weber is equal to)	$1/ NA^{-1}m^{-1}$	NAm	$NA^{-1}m^{-1}$	$NA^{-1}m$ ✓
21	SI unit of magnetic flux is	tesla	Henry	Gauss	Weber ✓
22	Weber is unit of	Magnetic field	Magnetic induction	Magnetic flux density	Magnetic flux ✓
23	SI unit of magnetic flux density is	$1/ NA^{-1}m^{-1}$	NAm	$NA^{-1}m$	$NA^{-1}m^{-1}$ ✓
24	Magnetic induction is called	magnetization	Magnetic intensity	flux	Flux density ✓
25	The SI unit of magnetic flux density is	NAm^{-1}	$NA^{-1}m$	Weber	Weber / m^2 ✓
26	An electron enters a region where the electric field E is effect of the field changes the particle's	energy	mass	speed	motion ✓
27	When a charged particle is projected perpendicular to magnetic field its trajectory is	ellipse	spiral	helix	circle ✓
28	The e/m of an electron moving with speed along a circular path in a magnetic field is	Br/V	V/Br ✓	B/Vr	Vr/B
29	perpendicular to magnetic field B. It will suffer no deflection	B=eE/v	E=Bev/2	E=eVB	E=vB ✓
30	The magnetic field produced by a current carrying conductor at a point is B=	$Ir/ \mu_o 2\pi$	$1/\mu_o I 2\pi r$	$\mu_o I 2\pi r$	$\mu_o I/2\pi r$ ✓
31	The relation $B= \mu_o I/2\pi r$ is called	Faraday's law	Lorentz force	Ohm's law	Ampere's law ✓
32	The magnitude of permeability of free space is	$4\pi / 10^{-7}$	$1/4\pi \times 10^{-7}$	$4\pi \times 10^7$	$4\pi \times 10^{-7}$ ✓
33	The S.I unit of permeability of free space is	1/Weber A m	Weber A m	Weber A /m	Weber /Am ✓
34	The expression $B.\Delta l = \mu_o I$ is known as	Faraday's law	Lenz's law	Gauss's law	Ampere's law ✓
35	Two parallel wires carrying current in opposite direction -------- -------- each other	repel ✓	Neither attract nor repel	Cancel each other's effect	Attract
36	Which of the following particles moving in magnetic field	α-particles	β-particles	electron	Neutron ✓

	would not be deflected				
37	A device used for the detection of current is called	ohmmeter	voltmeter	ammeter	Galvanometer ✓
38	The coil of galvanometer is suspended in a radial magnetic field so that the deflecting torque on the coil is	$\tau = NIAB\tan\alpha$	$\tau = NIAB\cos\alpha$	$\tau = NIAB\sin\alpha$	$\tau = NIAB$ ✓
39	The coil is situated in the magnetic field such that the plane of the coil is always	At 60^o to field	At 45^o to field	Perpendicular	Parallel to field ✓
40	The relation between current I and the angle of deflection in a moving coil galvanometer is	$I \alpha 1/\theta$	$I \alpha \cos\theta$	$I \alpha \sin\theta$	$I \alpha \theta$ ✓
41	The sensitivity of a galvanometer is given by	BAN/C	1/CBAN	CBAN	C/BAN ✓
42	The sensitivity of a galvanometer can be increased if the factor c/BAN	Becomes zero	Remains same	increases	Decreases ✓
43	Which of the following apparatus is used to measure current, voltage and resistance	ohmmeter	ammeter	voltmeter	AVO meter ✓
44	The sensitivity of a galvanometer can be increased by decreasing	Area of coil	Magnetic field	Number of turns	Suspension coefficient ✓
45	Voltmeter is used to measure	temperature	resistance	current	Potential difference ✓
46	Which of the following resistance is used to convert a A galvanometer is converted into an ammeter by connecting suitable	High resistance in series	Low resistance in series	High resistance in parallel	Low resistance in parallel ✓
47	A galvanometer is converted into an voltmeter by connecting a suitable	low resistance in series	Low resistance in series	High resistance in parallel	High resistance in series ✓
48	galvanometer into an ammeter	High resistance in series	series	parallel	parallel ✓
49	Ammeter is a ---------- instrument	Zero resistance	Infinite resistance	High resistance	Low resistance ✓
50	An ammeter only can be used in	Parallel arrangement	Series arrangement	Both the arrangements	None of these
51	Shunt resistance is called	Low resistance	Specific resistance	High resistance	Bypass resistance ✓
52	Minimum current required to produce a deflection of one mille meter on a scale at a distance of 1 meter is	One Ohm	One coulomb	One ampere	Current sensitivity ✓
53	To convert a galvanometer into an ammeter, the shunt	$R_s = I_g R_g / I - I_g$ ✓	$R_S = IR_g / I - I_g$	$R_S = I_g R_g / I_g - I$	none

	resistance is given by				
54	In order to increase the range of an ammeter, the shunt resistance is	Made zero	Increased	Kept constant	decreased ✓
55	In order to increase the range of a voltmeter, series resistance is	Made zero	Decreased	Kept constant	increased ✓
56	Cathode ray oscilloscope works by deflecting beam of	positrons	neutrons	protons	electrons ✓
57	Brightness of spot on screen of oscilloscope is controlled by	anode	Deflecting plates	cathode	grid ✓
58	For accurate measurement of current through a circuit , the resistance of ammeter should be	Very small compared to the Circuit resistance ✓	Large compared to the circuit resistance	Neither too small nor too large	None of these
59	Such a galvanometer in which the coil comes to rest quickly after the current passed through it is called	Sensitive	Dead beat	stable	Both (b) & (c) ✓
60	Two parallel wires carrying current in same direction ---------- --- each other	Attract ✓	Neither attract nor repel	Cancel each other's effect	repel
61	The magnetic force is	Restoring force	Lorentz force	Deflecting force ✓	All of above
62	The grid in CRO	Control the number of electron accelerated.by anode	Control the brightness of spot on the screen	Both A&B ✓	Deflect the beam of electron
63	To convert a wheat stone type galvanometer in to voltmeter, the series resistance is (the high resistance connected in series with galvanometer to convert it into voltmeter of range 0-V volt is given by)	$R_h = V/I_g$	$R_h = V/I_g - R_g$ ✓	$R_h = V/R_g - I_g$	None
64	An AVO meter is also called	An ammeter	A voltmeter	A multi meter ✓	An ohm meter
65	If the fingers of right hand show the direction of magnetic field and palm shows direction of force then thumb points for	Torque	Voltage	Current ✓	Induced emf
66	When a small resistance is connected parallel to galvanometer the resulting is	Voltmeter	Ammeter ✓	Ohmmeter	AVO meter
67	Ammeter is used to measure	temperature	resistance	current ✓	Potential difference
68	An electron of mass m and charge e moving in a circle of radius r with velocity v in a uniform magnetic field of strength B. then	$r \alpha m$ ✓	$r \alpha B$	$r \alpha 1/m$	$r \alpha 1/v$

CH#15(Electromagnetic Induction)

S.#	QUESTIONS	A	B	C	D
1	The experiments show that whenever there is a change in the magnetic flux linked with a loop or closed circuit there is always	Inductance induced	Capacitance induced	A charge induced	An emf induced ✓
2	Electromagnetic induction is the phenomenon in which an emf is induced in the coil due to the change of flux through it when	Coil is moved in electric field	Coil is placed in electric field	Coil is placed in magnetic field	Coil is moved in magnetic field ✓
3	According to Faraday's law of electromagnetic induction the induced emf in a coil can be mathematically expressed as	$\varepsilon=-N\Delta\phi x\Delta t$	$\varepsilon=-\Delta I/\Delta t$	$\varepsilon=-\Delta B/\Delta t$	$\varepsilon=-N\Delta\phi/\Delta t$ ✓
4	The current flowing through a coil due to induced emf in it depends upon	Shape of the coil	Area of the coil	Magnetic flux	Resistance of the coil ✓
5	The statement " the direction of an induced current is such as to oppose the cause which produces it " is known as	Biot savert law	Gauss's law	Faraday's law	Lenz's law ✓
6	Lenz's law is in accordance with law of conservation of	Angular momentum	charge	momentum	energy ✓
7	The ratio of self induced emf to the rate of change of causes an induced emf in another coil nearby it is called	The Henry effect	Self inductance	Self induction	induction ✓
8	Mutual inductance has practical role in the performance of the	Radio choke	A.C generator	D.C generator	Transformer ✓
9	The phenomenon of producing emf in the coil due to change of current in the coil itself is called	The Henry effect	Self inductance	Mutual induction	Self induction ✓
10	current in the coil is known as	Mutual inductance	Mutual induction	Self induction	Self inductance ✓
11	The self inductance is expressed by the relation L=	$\Delta\phi/\Delta t$	$\Delta I/\Delta t/\ \varepsilon$	$\varepsilon x\Delta I/\Delta t$	$\varepsilon\ /\Delta I/\Delta t$ ✓
12	Henry is the unit of	Self inductance Only	Mutual inductance only	Both (a) and (b) ✓	Induced emf
13	The SI unit of self inductance or mutual inductance is	Tesla	Volt	Weber	Henry ✓
14	One Henry can be defined as	Weber / ampere^2	Ampere/ Weber	Weber ampere	Weber/ampere ✓
15	Inductance is measured in	Tesla	Volt	Weber	Henry ✓
16	The energy stored in an inductor is given by	$2L/I^2$	$L/2I^2$	LI^2	$LI^2/2$ ✓
17	A 50mH coil carries a current of 2A. the energy stored in its magnetic field is	0.05 J	10 J	100 J	0.1 J ✓

18	The motional emf developed in a conductor depends upon	length	orientation	Magnetic field	All of above ✓
19	A generator is device that converts	Chemical energy in to electrical energy	Mechanical energy in to electrical energy ✓	Heat energy into electrical energy	Solar energy into electrical energy
20	An alternating current is converted into direct current by a	motor	dynmo	transformer	rectifier ✓
21	A.C. can be measured with the help of	Chemical effect	Magnetic effect ✓	Chemical effect	Heating effect
22	Which of the following converts electrical energy into mechanical energy	A.C. generator	D.C. generator	Transformer	Motor ✓
23	An electric motor is device which converts	Chemical energy in to electri al energy	Mechanical energy in to electrical energy	electrical energy in to mechanical energy ✓	Chemical energy in to electrical energy
24	The only difference between construction of D.C. generator and an A.C. generator is that of	Carbon brushes	Coil	Magnetic field	Commutator ✓
25	A transformer is a device which	Only steps d wn A.C. voltage	Only steps down D.C. voltage	Only steps down or steps up A.C. voltage ✓	Only steps up D.C. voltage
26	A transformer consists of an iron core with	A pri ary coil	A secondary coil	Neither primary nor secondary	Primary coil and secondary coil ✓
27	The device which converts A.C. voltage of one magnitude into the other required magnitude of the A.C voltage is called	Electric motor	Rectifier	Amplifier	Transformer ✓
28	A transformer is used to change	Magnetic field	Electric field	The voltage of direct current	The voltage of alternating current ✓
29	A device consisting of two coils wound on an iron core is called	Electric motor	A.C. generator	D.C. generator	Transformer ✓
30	The practical application of phenomenon of mutual induction is	Electric motor	A.C. generator	D.C. generator	Transformer ✓
31	The fact that electric current through a conductor produces magnetic field around it was discovered by	Ampere	Joseph Henry	Michael Faraday	Oersted ✓
32	Which phenomenon of the following is produced first	Induced emf ✓	Induced current	Both (a) & (b)	Induced charge

33	When a coil is moved in a uniform magnetic field , an induced emf is produced due to change of	Magnetic field strength	Magnetic flux	Electric flux	Flux density ✓
34	If velocity of conductor moving through a magnetic field B is zero, then its motional emf will be	-vBL	V/BL	vBL	0 ✓
35	The negative sign in the expression ε=-vBL shows that the angle between the direction of L and (VxB) is	45^0	180^0	0^0	90^0 ✓
36	The rate of change of magnetic flux is directly proportional to the induced emf if other factors are kept constant, is the statement of	Lenz's law	Gauss's law	Ampere's law	Faraday's law ✓
37	One Henry is equal to	$Vs^{-1}A$	NmA^{-1}	$V^{-1}sA$	VsA^{-1} ✓
38	Self-induced emf is sometimes called as	Constant emf	Variable emf	Motional emf	Back emf ✓
39	Because of their self inductance, coils were known as	conductors	semiconductors	Insulators	Inductors ✓
40	If the plane of the generator coil is parallel to field, then emf induced in coil is	intermediate value	minimum	maximum	Zero ✓
41	The back emf of a motor can be expressed as	ε=V+IR	ε=V+IR/V	ε=V-IR ✓	ε=V+IR/R
42	A transformer works on the principle of	Faraday's law.	Magnetic Hysteresis	Self induction	Mutual induction ✓
43	A transformer steps 220 V to 40 V. if the secondary turns are 40 and primary turns are	20	40	120	220 ✓
44	Which one of the following is not present in A.C. generator	Armature	Magnet	Slip-rings	Commutator ✓
45	Milli Henry is unit of	current	charge	Current	Mutual inductance ✓
46	The negative sign with induced emf in Faraday's law is in accordance with	Coulomb'slaw	Ampere's law	Gauss's law	Lenz's law ✓
47	Energy density is defined as	Energy/unit length	Energy/ unit area	Energy/ unit volume ✓	All of above
48	A wire loop is moved parallel to a uniform magnetic field. The induced emf in the loop	Depends on nature of the loop	Depends on area of the loop	Depends on shape of the loop	Is zero ✓
49	Mutual inductance of coil depends upon	Stiffness of coils	Density of coils	Material of coils	Geometry of coils ✓
50	Changing current in a coil induces an emf in itself is called	Electrostatic induction	Mutual induction	Both (a) and (b)	Self induction ✓

51	The maximum emf generated in a generator is	$\varepsilon_0 = \varepsilon \sin\theta$	$\varepsilon = \varepsilon_0 \sin\theta$	$\varepsilon = N\omega AB \sin\theta$	$\varepsilon_0 = N\omega AB$ ✓
52	Magnetic potential energy stored in an inductor depends on	Under root of the value of current	Cube root of the value of current	Square of the value of current ✓	none
53	If motor is over loaded then magnitude of back emf	Increases	decreases ✓	constant	Become zero
54	When the back emf in a generator is maximum, it draws	Maximum current	Steady current	Zero current	none ✓ (minimum)
55	The principle of A.C generator is	Electromagnetic induction ✓	Mutual induction	Self induction	None
56	Eddy currents are produced in a material when it is placed	In time varying magnetic field ✓	Constant magnetic field	Constant Electric field	In time varying electric field
57	A rod of length 20 m is moving with 20 m/sec in a direction perpendicular to magnetic of 20 T the value of emf is	2000V	4000 V	6000V	8000V ✓
58	then emf induced across the secondary of transformer is	Zero ✓ blogspot .	Constant	Alternating	irregular

CH#16(A.C.Circits)

S.#	QUESTIONS	A.	B	C	D
1	The current which keeps on reversing its direction with time is	Electronic current	Induced current	Direct current	Alternating current ✓
2	The most common source of alternating current is	transformer	motor	battery	A.C. generator ✓
3	The current which changes its direction through the circuit for complete cycle is called	Electronic current	Induced current	Direct current	Alternating current ✓
4	The instantaneous value of the A.C. voltage is given by the re ation	$V=V_0\tan 2\pi ft$	$V=V_0\cos 2\pi ft$	$V=V_0/\sin 2\pi ft$	$V=V_0\sin(2\pi ft)$ ✓
6	If V_0 is the peak value of A.C. voltage, its root mean square value	$V_{rms}= V_0/2$	$V_{rms}=\sqrt{2}V_0$	$V_{rms}=\sqrt{2}\ V_0$	$V_{rms}=V_0/\sqrt{2}$ ✓
7	If I_0 is the peak value of A.C. current, its root mean square value	$I_{rms}= I_0/2$	$I_{rms}=\sqrt{2}I_0$	$I_{rms}=\sqrt{2}\ I_0$	$I_{rms}=I_0/\sqrt{2}$ ✓
8	If I_0 is the peak value of A.C. current, then average value of current	$I_0/2$	$\sqrt{2}I_0$	$I_0/\sqrt{2}$	Zero ✓
9	The sum of positive and negative peak values are usually written	Peak value	r.m.s. value	Average value	P-P value ✓
10	In an A.C. circuit with resistor only, the current and voltage have a phase angle of	45^0	180^0	90^0	0^0 ✓
11	The root mean square value of the current is given as	$I_{rms}=0.505I_0$	$I_{rms}=0.606I_0$	$I_{rms}=0.3053I_0$	$I_{rms}=0.707I_0$ ✓
12	The root mean square value of the current is given as	$V_{rms}=0.505V_0$	$V_{rms}=0.606V_0$	$V_{rms}=0.3053V_0$	$V_{rms}=0.707V_0$ ✓
13	If the peak value of A.C. voltage is $10\sqrt{2}$, then its root mean square value will be	5 volts	20 volts	25 volts	10 volts ✓

14	An A.C. meter reads 220 V, then its peak value will be	300 volts	255 volts	300 volts	311.12 volts ✓
15	The instantaneous value of the A.C. voltage is given by the relation	$V=V_0\tan\theta$	$V=V_0\cos\theta$	$V=V_0/\sin\theta$	$V=V_0\sin\theta$ ✓
16	In an A.C. circuit with capacitor only the current	Lags behind voltage by 90^0	Leads the voltage by 270^0	In phase with voltage	Leads the voltage by 90^0 ✓
17	In case of capacitor, S.I. unit of reactance is	Farad	Ampere	Volt	Ohm ✓
18	At high frequency, the current through a capacitor of A.C. circuit is	small	infinite	zero	large ✓
19	100μF capacitor is connected to an alternating voltage of 24V and frequency 50Hz. The reactance of the capacitor is	35Ω	40 Ω	30.5 Ω	31.8 Ω ✓
20	The inductive reactance of an inductor is given by	$X_L=2\pi fC$	$X_L=1/2\pi fL$	$X_L=2\pi f/L$	$X_L=2\pi fL$ ✓
21	The inductive reactance of an inductor is given by	ωC	√ ωL	1/ ωL	ωL ✓
22	The opposition offered by the inductor to the flow of A.C. is called	Capacitance	Resistance	inductance	Inductive reactance ✓
23	The inductive reactance of an inductor is given by	$X_L=2\pi fL$	ωL	V/I	All of above ✓
24	The reactance of a coil changes directly with	inductance	frequency	capacitance	Both (a) & (b)
25	The combined effect of resistance and reactance in a circuit is	Capacitance	Resistance	inductance	Impedance ✓
26	S.I. unit of impedance is	Henry	Hertz	Ampere	Ohm ✓
27	Ohm is the unit of	Impedance	Resistance	Inductive reactance	All of above ✓
29	In RLC series circuit the condition for resonance is	$X_L \geq X_C$	$X_L < X_C$	$X_L > X_C$	$X_L = X_C$ ✓
30	When $X_L = X_C$ this condition is called	Null	Balanced	Critical	Resonance ✓
31	Resonance frequency f_r =	√LC/2π	2π/√LC	2π√LC	1/2π√LC ✓
32	At resonance frequency the impedance of RLC series circuit is	maximum	zero	infinite	minimum ✓
33	At resonance frequency the impedance of RLC parallel circuit is	minimum	zero	infinite	maximum ✓
35	Resonance frequency of series resonance circuit is f_r =	√LC/2π	2π/√LC	2π√LC	1/2π√LC ✓
36	In a three phase A.C. supply the phase difference between each pair of coils is	45^0	180^0	90^0	120^0 ✓
37	The waves which do not require any material medium for their propagation are called	Stationary waves	Matter waves	Mechanical waves	Electromagnetic waves ✓
38	Maxwell's equations were discovered by James Clark Maxwell in	1864 ✓	1905	1970	1870
39	A changing electric flux creates a	Electric field	Magnetic field	Electromagnetic field ✓	Both (a) & (b)

40	A changing magnetic field creates	Electric field	Magnetic field	Electromagnetic field ✓	Electrostatic field
41	Electromagnetic waves consist of	Electric field	Magnetic field	Both electric and magnetic field parallel to each other	Both electric and magnetic field perpendicular to each other ✓
42	The electromagnetic waves propagated out in space from antenna of a transmitter are known as	γ-waves	Cosmic rays	Light waves	Radio waves ✓
43	In free space the speed of electromagnetic waves is	$3x10^6$ m/sec	$3x10^{10}$ m/sec	$3x10^7$ m/sec	$3x10^8$ m/sec ✓
44	When electrons in a transmitting antenna vibrate 94000 times each second, they produce radio waves having frequency	100 KHz	94 KHz ✓	120KHz	80KHz
45	In an electromagnetic wave, the electric and magnetic fields are	Parallel to each other	Anti parallel to each other	Inclined at a certain angle	Perpendicular to each other ✓
46	A sinusoidal current has rms value of 10A. its maximum value is	7.77 A	20 A	10 A	14.14A ✓
47	Which of the following are electromagnetic waves	Sound waves	Water waves	Waves along a spring	Light waves ✓
48	The electromagnetic waves travel in space with speed of	Cathode rays	Positive rays	Sound waves	light ✓
49	The direction of propagation of an electromagnetic waves is	Perpendicular. to electric field	Perpendicular to magnetic field	Perpendicular to Both electric and magnetic field ✓	Parallel to magnetic field
50	Which of the following is not electromagnetic wave in nature	Radar waves	Heat waves	Light waves	Sound waves ✓
51	Electromagnetic weaves transport	charge	current	wavelength	Energy ✓
52	Impedance is composed of	R	R and C	R and L	R, L and C ✓
53	The frequency of the range 20-20000 Hz is	Audible	visible	Ultrasonic	visible ✓
54	Electromagnetic waves transmitted form an antenna are	longitudinal	stationary	transverse ✓	All of above
55	Which of the following waves do not travel with speed of light	Radio waves	Heat waves	X-rays	Sound waves ✓
56	The minimum phase angle between V and I of RL-series circuit is	45^0	180^0	90^0 ✓	0^0
57	The effective value of any sinusoidal alternating current or voltage is defined as	√2 times its maximum value	1/√2 times its maximum value ✓	√3 times its maximum value	1/√3 times its maximum value
58	The frequency of A.C used in Pakistan is	60 CPS(Hz)	50 CPS(Hz) ✓	100 CPS(Hz)	120 CPS(Hz)
59	At resonance RLC series circuit shows the behavior of	Pure resistive circuit ✓	Pure capacitive circuit	Pure inductive circuit	Pure RLC circuit

60	At high frequency RLC series circuit shows the behavior of	Pure resistive circuit	Pure capacitive circuit	Pure inductive circuit ✓	Pure RLC circuit
61	The highest value reached by voltage or current in one cycle is called	Peak to peak value	Peak value ✓	Instantaneous value	Root mean square value
62	In pure resistive A.C circuit, instantaneous voltage or current	Current lags behind the voltage	Current leads voltage by $\pi/2$	Both are in phase ✓	Voltage leads current by $\pi/2$
63	At resonance frequency the current in RLC series circuit is	maximum ✓	zero	Infinite	minimum
64	At resonance the value of current in RLC series circuit is	V_0/R ✓	V_0R	Zero	1 / 2
65	In a three phase A.C. supply the phase difference in voltage of any two phases	360^0	180^0	90^0	120^0 ✓
66	If $V_{rms}=10\sqrt{2}$ then peak voltage V_0 is	10V	20V ✓	40V	$10/\sqrt{2}$

Ch#17(Solid State Physics).com

S.#	QUESTIONS	A	B	C	D
1	A solid having regular arrangement of molecules throughout its structure is called	Polymeric olids	Perfect solids	Amorphous solids	Crystalline solids ✓
2	A solid in which there is no regular arrangement of molecules is	Polymeric solids	Perfect solids	Amorphous solids ✓	Crystalline solids
3	The smallest three dimensional structure of crystalline solid which repeats over and over again is called	amorphous	Cell wall	Unit cell ✓	Crystal lattice
4	Which one of the following is a ductile substance	copper	Lead	Wrought iron	All of them ✓
5	The ability of a body to return to its original shape is called	strain	stress	plasticity	elasticity ✓
6	The force applied on a unit area to produce any change in the shape, length or volume of a body is called	strain	rigidity	plasticity	stress ✓
7	The S.I. unit of stress	Ncm^{-2}	Nm^{-1}	N	Nm^{-2} ✓
8	Nm^{-2} is called	Ohm	Ampere	Volt	Pascal ✓
9	If stress increased beyond elastic limit of the material , it becomes permanently changed, this behavior is called	plasticity ✓	Elastic deformation	Yield strength	elasticity
10	The maximum stress that a material can withstand is called	Yield strength	Permanent stress	Plastic strength	Ultimate tensile strength ✓
11	The value of stress beyond which a body is permanently deformed is called	Maximum stress	Plastic stress	Yield stress ✓	Minimum stress
12	Substances which break just after elastic limit is reached, are called	Soft substances	Ductile	Malleable substances	Brittle substances ✓

			substances		
13	With rise in temperature, the conductivity of semi-conductor material	Increases exponentially ✓	Decreases linearly	Decreases linearly	Decreases exponentially
14	A vacant or partially filled band is called	Fermi band	Valence band	Covalent band	Conduction band ✓
15	Narrow forbidden energy gap between the conduction and valence band of a conductor is of the order of	100 ev	50 ev	1 ev	0 ev ✓
16	A substance which has empty conduction band is called	semiconductor	transistor	insulator ✓	conductor
17	The doped semiconductors are called	p-type semiconductor	intrinsic semiconductors	semiconductors	Extrinsic semiconductors ✓
18	A semi-conductor in its extremely pure form is called	p-type semiconductor	Extrinsic semiconductors	semiconductors	intrinsic semiconductors ✓
19	When a silicon crystal is doped with a pentavalent impurity, the doped semiconductor is called	diode	Transistor	p-type	n-type ✓
20	Which one of the following is pentavalent impurity	Antimony	phosphorus	Arsenic	All of above ✓
21	a p-type semiconductor is obtained by doping germanium or silicon with	Monovalent impurity	Tetravalent impurity	Pentvalent impurity	Trivalent impurity ✓
22	In p-type substance the majority charge carriers are	electrons	protons	neutrons	holes ✓
23	In p-type substance the minority charge carriers are	h les	protons	neutrons	electrons ✓
24	In n-type substance the minority charge carriers are	electrons	protons	neutrons	holes ✓
25	A p-type crystal is	Negatively charged	Positively charged	Both (a) & (b)	Electrically neutral ✓
26	The band theory of solids has explained the distinguishing b havior of	conductors	Insulators	semiconductors	All of above ✓
27	A completely filled band is called	Conduction band	Fermi band	Forbidden band	Valence band ✓
28	Which one of the following has the greatest energy gap	conductors	semiconductors	Insulators ✓	All of above
29	Many of the semi-conductors are crystals of the type	Body-centered cubic	Face-centered cubic	Simple cubic	All of the above ✓
30	The substances with resistivity of the order of 10^4 Ohm-meter	conductors	Insulators	semiconductors ✓	All of above
31	The value of resistivity of semiconductors is of the order of	10^4 to 10^6 ohm m ✓	10^{-4} - to 10^{-6} ohm m	10^{-6} to 10^{-4} ohm m	10^{-6}_{-1} to 10^{-4} (ohm m)
32	The materials used for semiconductors are	Diamond and carbon	Indium and galium	Arsenic and antimony	Silicon and germanium ✓
33	An n-type semiconductor is formed by adding impurity	aluminium	gallium	phosphorous ✓	All of above

34	The materials whose resistivity becomes zero below a certain temperature are called	conductors	Insulators	semiconductors	superconductors ✓
35	The temperature below which the resistivity of a super conductor falls to zero is called	Absolute temperature	Kelvin temperature	Limiting temperature	Critical temperature ✓
36	The first superconductor was discovered in	1990	1960	1911 ✓	1831
37	The practical use of superconductors is	Magnetic resonance imaging	Magnetic levitation train	Powerful but small electric motors	All of above ✓
38	The field produced by an electron is generated by its	Orbital motion	Spin motion	Both (a) (b)	All of above ✓
39	The curie temperature for iron is	875 ^{0}C	750 ^{0}C ✓	1000 ^{0}C	950 ^{0}C
40	The S.I. unit of stress is same as that of	momentum	force	Length	pressure ✓
41	Which one of the following exhibit good strength to weight ratio	Metals	crystalline	Amorphous	polymeric ✓
42	A pentavalent impurity is	boron	aluminum	Indium	phosphorous ✓
43	A hole in a p-type material is	Missing prot n	Excess electron	Missing atom	Missing electron ✓
44	Insulators are those materials which have	Filled conduction band	No conduction band	Partially filled conduction band	Empty conduction band ✓
45	In p-type substance charge carriers are	protons	electrons	neutrons	Holes ✓
46	In n-type substance charge carriers are	p otons.	holes	neutrons	Electrons ✓
47	Donor impurities are	aluminium	germanium	silicon	Phosphorous ✓
48	Acceptor impurities are	phosphorous	germanium	silicon	Aluminium ✓
49	Which one of the following is not an acceptor impurity	aluminium	boron	indium	Phosphorous ✓
50	N-type germanium is obtained by doping intrinsic germanium with	Tetravalent impurity atom	Trivalent impurity atom	pentavalent impurity atom ✓	Hexavalent impurity atom
51	The substances with conductivies between 10^{-10} and 10^{-20} $(\Omega m)^{-1}$ are called	Super conductors	Conductors	Insulators ✓	semiconductors
52	The ratio of applied stress to volumetric strain is called	Young's modulus	Bulk modulus ✓	Shear modulus	Tensile modulus
53	When stress changes the shape of the object, it is called	Volumetric stress	Shear stress ✓	Tensile stress	Compressional stress
54	The S.I. unit of strain is	Nm^{-2}	Nm^{-1}	No unit ✓	Kg m / sec
55	Magnetism lags behind the magnetizing current this phenomenon is called	Hysteresis ✓	Saturation	Retentivity	None

56	The critical temperature for mercury is	7.2K	4.2K ✓	1.18K	3.7K

CH#18(Electronics)

S.#	QUESTIONS	A	B	C	D
1	Depletion region carries	Negative charge	Positive charge	Protons	No charge ✓
2	In reverse biasing a p-n junction offers	Low resistance	Zero resistance	Infinite resistance	High resistance ✓
3	Semi-conductor diode conducts only when it is	Reverse biased	Not biased	Forward biased ✓	All of above
4	Depletion region has	Electrons only	Holes only	Both (a) & (b)	None of these ✓
5	The forward current through a semi-conductor diode circuit is due to	Minority charge carriers	electrons	Holes	Majority charge carriers ✓
6	The reverse current through a semi-conductor diode circuit is due to	majority charge carriers	electrons	Holes	minority charge carriers ✓
7	The diode cannot be used as	rectifier	detector	modulator	Amplifier ✓
8	In semi conductor diode the p-type end is usually referred as	cathode	neutral	anode ✓	All of above
9	A photo diode is a semi conductor diode usually made from	bismuth	arsenic	antimony	Silicon ✓
10	Transistor was discovered by	Young	I.Curie	Shales	John Bardeen ✓
11	The potential difference set up across the depletion region is called	Absolute potential	Neutral potential	Potential barrier ✓	All of above
12	The potential barrier for germanium at room temperature is	1 volt	7 volt	5 volt	0.3 volt ✓
13	The potential barrier for silicon at room temperature is	1 volt	7 volt	5 volt	0.7 volt ✓
14	Process of conversion of A.C. into D.C. is called	amplification	modulation	biasing	Rectification ✓
15	Conversion of only one half of A.C. into D.C. is called	Full wave amplification	Half wave amplification	Full wave rectification	Half wave rectification ✓
16	The number of terminals in a semiconductor diode is	3	4	1	2 ✓
17	A photo diode is used for	Logic circuits	Automatic switching	Photo detection	all of above ✓
18	The central region of a transistor is called	emitter	collector	base ✓	All of above
19	A light emitting diode is made from	Gallium arsenide phosphide	Gallium phosphide	Gallium arsenide	All of above ✓
20	The current gain ratio β of a transistor is given as	$\beta = I_C I_B$	$\beta = I_B / I_C$	$\beta = 1 / I_C I_B$	$\beta = I_C / I_B$ ✓
21	The equation of voltage gain β of an amplifier can be expressed as	$\beta = V_{in} / V_{out}$	$\beta = I_{in} / I_{out}$	$\beta = I_{out} / I_{in}$	$\beta = V_{out} / V_{in}$ ✓
22	The circuit which changes input signal at the output with a phase shift of 180^0 is called	diode	switch	inductor	Inverter ✓
23	The gain of the non-inverting amplifier can be expressed as	$G=1-R_2/R_1$	$G=R_2/R_1-1$	$G= -R_2/R_1$	$G=1+R_2/R_1$ ✓

24	The magnitude of open loop gain of the operational amplifier is of the order of	10^7	10^3	10^2	10^5 ✓
25	The electronic circuit which gives the inversion of input signal at the output is called	AND GATE	OR GATE	XOR GATE	NOT GATE ✓
26	LDR means	Low degree resistor	Low degree radiations	Low degree rectification	Light dependent resistance ✓
27	The output of two inputs OR gate is 0 only when its	Both inputs are 0 ✓	Either input is 1	Both inputs are 1	Either input is 0
28	Transistors are made from	Plastics	metals	Insulators	Doped semiconductors ✓
29	When a p-n junction is reverse biased , the depletion region is	widened ✓	normal	narrowed	All of above
30	Base of the transistor is very thin of the order of	10^{-2}m	10^{-4}m	10^{-6}m ✓	10^{-8}m
31	Universal gate is the gate which perform the function of	Buffer gate	Any gate ✓	Any basic gate	Any exclusive gate
32	A potential barrier of0.7 V across p-n junction made from	Silicon ✓	Germanium	Indium	Gallium
36	Gain of inverting op-amp in the $R_1=\alpha$ and $R_2=0$	A	1	0 ✓	-1
33	In npn transistor current does not flow in the direction from	Emitter to collec or	Emitter to base	Base to collector	emitter ✓
34	Photo diode can turn its current on and off in	Nano sec ✓	Micro sec	Milli sec	sec
35	The automatic working of street lights is due to	Induct r	Capacitor	Comparator ✓	Rectifier
37	A NAND gate with two inputs A &B has an out put 0, if	A =0	B =0	Both A & B are 0	Both A & B are 1 ✓
38	Which of the followings is not basic operation of Boolean variable	YES operation ✓	NOT operation	OR operation	AND operation

CH#19(Dawn Of Modern Physics)

S.#	QUESTIONS	A	B	C	D
1	Mathematical treatment for electromagnetic waves was given by	Faraday	Hertz	Coulomb	Maxwell
2	Which one of the following require a material medium for their propagation	Heat waves	Light waves	X-rays	Sound waves
3	All motions are	absolute	uniform	variable	Relative
4	The existence of ether wind was experimentally rejected by	Heisenberg	Einstein	De Broglie	Michelson and Morley

5	The mathematical meaning to the position of an object was given by	Einstein	Archimedes	Galileo	Descartes
6	An inertial frame of reference is that one	Which moves with uniform	Which is at rest	Which has zero	All of the above

		velocity		acceleration	
7	A non-inertial frame of reference is that one	Which moves with uniform velocity	Which is at rest	Which has zero acceleration	Which is accelerated
8	In 1905 the theory of relativity was proposed by	Michelson	Maxwell	Archimedes	Einstein
9	Which one of the following physical quantities change with relativistic speed	mass	length	time	All of above
10	Einstein's relativistic time measured by an observer in a moving frame of reference with velocity v is given by	t=	t_0=	$t = t_0$	None
11	The mass of an object will be doubled at speed	3.6×10^7 m/sec	2.6×10^7 m/sec	1.6×10^8 m/sec	2.6×10^8 m/sec
12	Einstein's mass energy relation is	com $E=1/mc^2$	$E=mc$	$E=m/c^2$	$E=mc^2$
13	Amount of energy released due to complete breaking of 1 kg	3×10^{10} ergs	3×10^{10} ergs	9×10^{20} Joules	9×10^{16} Joules
	An observer sitting in an aeroplane and moving with very high matter is	blogspot .			
14	If energy of photon is E its equivalent to mass	$m = E/C$	$m = EC^2$	$m = E/C^2$	$m = C^2/E$
15	If a material object moves with speed of light, its mass becomes	Equal to its rest mass	Four times of its rest mass	Double	Infinite
		.	Greater than	Less than its rest	

16	speed observes the mass of the object at rest with respect it. He finds its mass to be	Equal to its rest mass $\frac{t_0}{\sqrt{1-\frac{v^2}{c^2}}}$	its rest mass $\frac{t}{\sqrt{1-\frac{v^2}{c^2}}}$	mass	Infinite
17	If mass of particle is m_0 and relativistic mass is m, then its kinetic energy is	$(m-m_0)c^2/2$	$(m-m_0)c^2$	$mv^2/2$	mc^2
18	0.1kg will be equivalent to the energy	6×10^{16} Joules	5×10^8 Joules	9×10^{16} Joules	9×10^{15} Joules
19	The electron was discovered by	Rayleigh - Jean	Max Carl Wein	Max Plank	J.J. Thomson
20	Plank's Quantum concept was used by	J.J.Thomson	Rutherford	Bucherer	Einstein
21	Radiations are always emitted or absorbed in the form of packets of energy. This is a statement of	Raleigh-Jean's law	Wein's displacement law	Stefan's Law	Plank's quantum law
22	Absorption power of a perfect black body is	0	0.5	infinity	1
23	On a hot day or in hot climates white clothes are worn because they are good	absorber s	radiators	emitters	Reflectors
24	Rest mass of a photon is	1.6×10^{-27} kg	Very small	zero	Infinite
25	The name of the photon for a quantum of light was proposed by	Bohr	Einstein	Thomson	Plank
26	The magnitude of Plank's constant is	8.85×10^{-19} Jsec	6.63×10^{-19} Jsec	$.63 \times 10^{-10}$ Jsec	6.63×10^{-34} Jsec
27	The energy of a photon is given by	$mV^2/2$	hf	V_0e	m_0c^2

28	In photoelectric effect , γ-rays are completely absorbed with the emission of	protons	neutrons	positrons	Electrons
29	In photoelectric effect, light exhibits	Wave-nature	Particle nature	Both (a) & (b)	All of above
30	An electric eye operates because of	Compton effect	Photo refraction	Pair production	Photoelectric effect
31	The amount of energy required to eject an electron from a metal surface is called	Threshold frequency	Pair production	Photoelectric effect	Work function
32	Joule-second is the unit of	energy	heat	work	Plank's constant
33	Joule-second is the unit of	energy	heat	work	Angular momentum
34	In which of the following phenomenon, the electromagnetic radiations show particle property	Polarization	diffraction	interference	Photoelectric effect
35	The maximum kinetic energy of emitted photoelectrons depends upon	Temperature of surface	Intensity of incident light	Polarization of light	Frequency of incident light
36	Einstein explained the photo-electric effect on the following assumption that	Light has wave nature	Light are mechanical waves	Both (a) & (b)	Light has particle nature

37	A device based on photoelectric effect is called	Pho synthesis	Photo diode	Photo sensitive	photocell
38	Einstein explained the photo-electric effect on the following assumption that	Light has wave nature	Light are mechanical waves	Light has particle nature	Light consists of photons or quanta
39	The number of photoelectrons ejected is	inversely proportional to intensity of incident light	Directly proportional to frequency of incident light	inversely proportional to frequency of incident light	Directly proportional to intensity of incident light
40	Which one of the following statements is true for photoelectric experiment	Thresh hold frequency depends on the nature of metal surface	No photoelectric emission takes place if the frequency of light is smaller than thresh hold frequency	The energy of photoelectrons depends upon the frequency of light	All of above
41	Einstein's photoelectric equation is given by	$mv^2_{max}/2=hf+\phi$	$mv^2_{max}/2-hf=\phi$	$mv^2_{max}/2=hf-\phi$	$hf=$

					$mv^2_{max}/2+\phi$
42	The momentum of a photon of frequency f is	hc/f	hf/c	c/hf	f/hc
43	Compton's scattering experiment provides a proof that radiation has a	Wave-nature	Particle-wave nature	X-ray nature	Particle nature
44	In Compton scattering, the change in the wavelength is given by	$\Delta\lambda=h(1+\cos\theta)/2m_0c$	$\Delta\lambda=h(1-\cos\theta)/m_0c^2$	$\Delta\lambda=hc(1+\cos\theta)/m_0$	$\Delta\lambda=h(1-\cos\theta)/m_0c$
45	In Compton scattering, the change in wavelength will be maximum when angle of scattering θ=	45^0	$_00$	180^0	$_{90}{}^0$
46	The momentum of the moving photon is	Zero	$P=h\lambda$	$P=h/\lambda$	$P=\lambda/h$
47	Pair production takes place only when the energy of the photon fulfills the condition that hf is	Greater than 0.52 MeV	Less than 0.52 MeV	Greater than 1.02 MeV	Less than 1.02 MeV
48	The minimum energy required by a photon to create an electron-positron pair is	3 MeV	4 MeV	1.02 keV	1.02 MeV
51 49	In annihilation of matter, an electron and a positron combine to produce two gamma ray photons in opposite direction for	9.11x10blogspotJ Conservation of mass	Conservation of energy	Conservation of momentum	Conservation of charge
50	The pair production and annihilation of matter are	Similar phenomenon	Opposite phenomenon	Both (a) & (b)	None of these
52	Positron was discovered by	Chadwick	J.J. Thomson	Millikan	Carl Anderson

53	If a particle of mass m is moving with a speed v, then the de-Broglie wavelength associated with it will be	$\lambda = 3\ h/mv$	$\lambda = 2h/mv$	$\lambda = h/2mv$	$\lambda = h/mv$
54	The experimental evidence for the existence of de-Broglie wavelength with moving object was a consequence of the	Plank	Compton's effect	Einsten	Davison & Germer experiment
55	The de-Broglie wavelength of a particle is	Proportional to its momentum	Proportional to its energy	directly proportional to its momentum	Inversely proportional to its momentum
56	Which of the following can be studied with γ-rays	Photoelectric effect	Compton's effect	Both (a) & (b)	Pair production
57	According to the uncertainty principle, the mathematical relation between position and momentum is given by	$\Delta x \Delta t \approx h$	$\Delta x \Delta t \approx 1/h$	$\Delta x \Delta p \approx h$	$\Delta x \approx \Delta ph$
58	The uncertainty principle points out that	Electron can exist inside the nucleus	Electron can not exist outside the nucleus	Electron Can not exist inside the nucleus	All of above

59	Blue light has frequency $7.5x10^{14}$ Hz. Its energy is	3.1 eV	6.2 eV	9.3 eV	5.6 eV
60	The speed of light in free space regardless of the state of motion of the observer is	Less than speed of sound	Sometimes constant	variable	Always constant
61	The part of special theory of relativity which deals with the accelerated motion is called	Gallilean transformation	Space theory of relativity	special theory of relativity	General theory of relativity
62	When a platinum wire heated at about 500 ^{0}C, it becomes	Dull red	White	red	Yellow
63	The platinum wire becomes white at a temperature of	500 ^{0}C	900 ^{0}C	1100 ^{0}C	1600 ^{0}C
64	The stopping potential for a certain metal is 10 volts, then the work function for the cathode is	$1.6x10^{-19}$ J	$1.6x10^{-20}$ J	$1.6x10^{-17}$ J	$1.6x10^{-18}$ J
65	The reverse phenomenon of photoelectric effect is	Photoelectric effect	Compton effect	Pair production	X- ray production
66	The amount of energy to create an electron-positron pair is equal to	m_0^2 c /2	m_0c^2	$mv^2/2$	2 m_0c^2
67	The antiparticle of electron is	proton	neutron	mueon	Positron
70	Particle nature of light is revealed by	Photoelectric effect	Compton effect	Both (a) & (b)	interference
68	Photoelectric effect can be explained by	Special theory of light	Wave nature of light	Electromagnetic theory of light	Quantum theory of light
69	Wave nature of light is revealed by	Polarization	diffraction	interference	All of above
71	Electron microscope makes practical use of		Dual nature of	Particle nature	None of these

	the	Wave nature of electrons	electrons	of electrons	
72	The SI unit of Plank's constant is	N-	Volt	$J\text{-}sec^{-1}$	J-sec
73	The photoelectric threshold frequency depends upon	frequency	Frequency of incident light	Intensity of light	Nature of material
74	$(K.E)_{max}=hf-hf_0$ is known as	Compton effect	Pair production	Plank constant	Photo electric equation
75	For pair production the energy of a photon must be	Less than 2 m_0c^2	Equal to 2 m_0c^2	Greater than2 m_0c^2	Equal to 2 m_0c^2
76	Theory of relativity which deals with non-inertial frame of reference is called	Classical theory	Quantum theory	General theory of relativity	Special theory of relativity
77	Wave nature of light appears in	Photoelectric effect	Pair production	Compton effect	Interference
78	Wave nature of light appears in	Photoelectric effect	Pair production	Compton effect	diffraction
79	Wave nature of light appears in	Photoelectric effect	Pair production	Compton effect	Polarization
80	Electron microscope makes use of electron beam because energetic electrons have	Very small charge	Very large momentum	Very small size	Very short De-Broglie

Prof. Muhammad Shahid Mirza (0321-7814911)

Prof. Nveed Ahmad Janjua (0302-4425094)

111-C Peoples Colony No.01 Refuljent Public School. Faisalabad

Contacts: 0300-4590930, 0300-7618083 & 0331-7814911

					wavelength
81	If speed of light were infinite then moving mass m=	0	$2m_0$	m_0	Infinite
82	Rest mass energy of electron-positron pair is	2MeV	5MeV	1MeV	1.02MeV
83	When light falls on a metal surface, photo electrons are emitted. If the intensity of the light is increased, which of the following will increase	The velocity of the emitted electrons	The minimum K.E. of the emitted electrons	The maximum K.E. of the emitted electrons	The number of electrons emitted per second
84	Tick the correct statement	A perfectly black body is one which absorbs all the radiations incident on it	A perfectly black body when hot, emits full radiations.	Black body radiation is also called temperature radiation	All of above
85	As the temperature of a black body is raised, the wavelength corresponding to maximum intensity	Shifts towards longer wavelength	Remains the same	Shifts towards lower frequency	Shifts towards shorter wavelength
86	Emission of electron by metals on heating is called	Secondary emi sion	Field effect	Photoelectric effect	Thermionic emission
87	By using NAVSTAR speed of an object can now be determined to an accuracy of	20 cm / sec	760 cm / sec	50 cm / sec	2 cm / sec

88	The radius of atom is of the order of	10^{1}	10^{-14}m	10^{-10}m	10^{14}m
89	When electron and positron are annihilated, the number of photons produced	1	2	3	None
90	Davison and Germer indicate …….. in their experiment	Electron reflection	Electron polarization	Electron diffraction	Electron refraction
91	The total amount of energy radiated per unit orifice area of cavity radiator per unit time is directly proportional to	T	T^2	T^3	T^4

CH#20(Atomic Spectra)

S.#	QUESTIONS	A	B	C	D
1	The radiations emitted from hydrogen filled discharge tube shows	Band spectrum	Line spectrum ✓	Continuous spectrum	Absorption spectrum
2	Real mass of an electron is	$9.10x10^{-27}$ kg	$9.10x10^{-28}$ kg	$9.10x10^{-29}$ kg	$9.10x10^{-31}$ kg✓
3	Bohr's atomic model of hydrogen was proposed by Niel Bohr in	1925	1928	1915	1913✓
4	In Bohr atom model, the electron does not fall into the nucleus because	Electron has negative charge	The quantum rules do not	The electron is not a particle	The electrostatic attraction is

			allow it		balanced by mechanical force ✓
5	Which one of the following various series of hydrogen spectrum lies in the ultra violet region	Paschen series	Bracket series	Balmer series	Lyman series ✓
6	The magnitude of Rydberg constant is	1.0974×10^{-7} m	1.0974×10^{-7} m^{-1}	1.0974×10^{7} m	1.0974×10^{7} m^{-1} ✓
7	Which one of the following various series of hydrogen spectrum lies in the visible region	Paschen series	Bracket series	Lyman series	Balmer series ✓
8	When electron absorbs energy, it jumps to	Lower energy level	Ground level	infinity	Higher energy level ✓
9	If an electron jumps from lower to higher orbit it will	Emit energy	Neither emit nor absorb energy	It will emit as well as absorb energy	Absorb energy ✓
10	The radius of first Bohr orbit in the hydrogen atom is	1.6×10^{-19} cm	10.0974×10^{-10}cm	9.11×10^{-31} cm	0.53×10^{-10} m ✓
11	When an electron jumps from a higher orbit of energy E_n to a lower orbit of energy E_p, the frequency f of the emitted radiation is given by the relation	$f=hE_n/E$	$f=(E_n/E_p)h$	$f=h(E_n-E_p)$	$f=(E_n-E_p)/h$ ✓
12	The numerical value of ground state energy fot the hydrogen atom	E_1=-10.6 eV	E_1=13.6 eV	E_1=-5.6 eV	E_1= -13.6 eV ✓
13	If the radius of first orbit of hydrogen atom is $0.53A^0$, the radius of second orbit will be	$2.120A^0$	$0.2120A^0$	$21.200A^0$	$0.142A^0$ ✓
14	If the radius of first orbit of hydrogen atom is 0.053nm , the radius of second orbit will be	0.106nm	0.212nm ✓	0.053 nm	0.53×10^{-10} nm
15	The radius of the third Bohr orbit in hydrogen atom is greater than the radius of the first orbit by a factor of	2	3	4	9 ✓
16	The electric potential energy of an electron in an orbit at a distance r_n from the positive charge	Ke^2/r_n	Ke^2/r_n	$-Ke^2/r_n$	$-Ke^2/r_n$
17	Total energy of an electron in an orbit around the nucleus is the sum of	Rotational energy and kinetic energy	rotational energy and kinetic energy	Rotational energy and kinetic energy	potential energy and kinetic energy ✓
18	The energy of the 4^{th} orbit in hydrogen atom is	-2.51 eV	-3.50 eV	-13.6 eV	-0.85 eV ✓
19	Wavelength shorter than violet is called	X-ray	Γ-rays	Infra red radiation	Ultra violet radiation ✓
20	Radiation with wavelength longer than red light is called	X-ray	Γ-rays	Ultra violet radiation	Infra red radiation ✓
21	The Balmer series is obtained when all the transitions of electron terminate on	4^{th} orbit	3^{rd} Orbit	5^{th} orbit	2^{nd} Orbit ✓

22	The Bracket series is obtained when all the transitions of electron terminate on	2^{nd} orbit	3^{rd} Orbit	5^{th} orbit	4^{th} Orbit ✓
23	In an electronic transition, an atom cannot emit	Infra red radiation	Visible light	X-rays	γ-rays ✓
24	Energy required by an atom to move from ground state to higher energy state is called	Excitation potential	Ionization energy	Ionization potential	Excitation energy ✓
25	The energy in electron volt necessary to remove the most loosely bound electron from the neutral atom is known as	Excitation potential	Excitation energy	Ionization potential	Ionization energy ✓
26	k-series of characteristic X-rays are produced when all the transitions of inner-shell electrons terminate on	M-shell	L-shell	N-shell	K-shell ✓
27	X-rays were discovered by	Curie	Becquerel	Einstein	Roentgen ✓
28	X-rays are similar in nature to	Positive rays	Gamma rays ✓	Alpha rays	Cathode rays
29	X-rays exhibit the phenomenon of	interference	diffraction	polarization	All of above ✓
30	X-rays are	High energy electrons	High energy photons ✓	Radio isotopes	Of unknown wave nature
31	X-rays are	Transver e waves	Longitudinal waves	Complex waves	Electromagnetic weaves ✓
33	The rest mass of x-ray photon is	infinite	$9.1x10^{-31}$ kg	$1.67x10^{-27}$ kg	zero ✓
34	Life time of excited state is	10^{-5} sec	10^{-5} sec	10^{-3} sec	10^{-8} sec ✓
35	The penetrating power of x-rays increases with	Decrease in their velocity	Increase in their intensity	Decrease in their intensity	Increase in their velocity ✓
36	Laser is a device which can produce	Intense beam of light	Coherent beam of light	Monochromatic beam of light	All of above ✓
37	The excited atoms return to their ground state in	10 sec	10 sec	10 sec	10 sec ✓
38	X-ray photons can not produce pair production because	Their rest mass is zero	They are electromagnetic waves	They are charge less	Their energy is less than 1.02MeV ✓
39	In 1913, modern tube for production of X-rays was designed by	Plank	Einstein	Roentgen	Dr.W.Coolidge ✓
40	Quality of X-rays depends upon	Filament of current	Accelerating voltage	Nature of target material	Both (b) & (c) ✓
41	The simplest spectrum is that of	Oxygen	Nitrogen	Chlorine	Hydrogen ✓
42	Balmer series lies in	Infra red region	Ultra violet region	Both (a) & (b)	Visible region ✓
43	The line spectrum of hydrogen atom contains the spectral lines in the	Infra red	Ultra violet	Visible	All of the

	region of				above ✓
44	Paschen series lies in the	Infra red region ✓	Ultra violet region	Both (a) & (b)	Visible region
45	Brackett series lies in the	Infra red region ✓	Ultra violet region	Both (a) & (b)	Visible region
46	How many postulates are upon which the Bohr's theory of hydrogen atom is based	4	2	1	3 ✓
47	According to Bohr, the angular momentum of an electron in the allowed orbit is given by	h/2π	h/2πn	2π/nh	nh/2π ✓
48	X-rays are radiation of	High energy	High frequency	Low wavelength	All of above ✓
49	In the state n=∞ of hydrogen atom, total energy of electron is	10.5 eV	9.8 eV	5.2 eV	zero ✓
50	E_n-E_p=hf is the energy of	proton	atom	electron	photon ✓
	The energy of the electron in the first allowed orbit of hydrogen atom				
52	The residing time of atoms in meta stable state in case of laser action is	10^{-5} sec	10^{-5} sec	10^{-8} sec	10^{-3} sec ✓
53	If ionization energy of hydrogen atom is 13.6eV , the ionization	14.6 V	3.4 V	136 V	13.6 V ✓
54	After the emission of X-ray, the atom of the target is	Doubly ionized	Singly ionized	Excited state ✓	Ground state
55	Atomic spectra are	Diffused spectra	Continuous spectra	Band spectrum	Line spectrum ✓
56	Energy of hydrogen atom in the ground state is	eV	-3.4eV	-1.5eV	-13.6eV ✓
57	Laser light is	Co-herent	Monochromatic	High intensity	All of above ✓
58	The potential required to remove an electron from the atom is called	Critical potential	Ionization potential ✓	Excitation potential	Absolute potential
59	Paschen series is obtained when all the transitions of electron terminate on	2^{nd} orbit	3^{rd} orbit ✓	4^{th} orbit	5^{th} orbit

CH#21 (Nuclear Physics)

S.#	QUESTIONS	A	B	C	D
1	Rutherford bombarded a thin sheet of gold with	γ-rays	β-particles	X-rays	α-particles ✓
2	Neutrons and protons in the nucleus are together called	photon	mesons	Atomic particles	nucleons ✓
3	Charge on neutron is	$1.6x10^{-19}$ C	$1.6x10^{19}$ C	$1.6x10^{-10}$ C	zero ✓
4	A particle having the mass of an electron and having the charge of a	antiproton	Gamma rays	photon	positron ✓

Prof. Muhammad Shahid Mirza (0321-7814911)
Prof. Nveed Ahmad Janjua (0302-4425094)

111-C Peoples Colony No.01 Refuljent Public School. Faisalabad
Contacts: 0300-4590930, 0300-7618083 & 0331-7814911

	proton is called				
5	Nuclei of different elements are identified by	Atomic mass number	Atomic number	Nuclear mass	Nuclear charge✓
6	Mass of neutron is	$1.67x10^{-31}$ kg	$1.67x10^{-27}$ kg✓	$9.1x10^{-31}$ kg	$1.6x10^{-19}$ kg
7	The nucleus consists of	protons	electrons	neutrons	Both (a) & (c) ✓
8	Mass of proton is	$9.1x10^{-31}$ kg	$1.67x10^{-31}$ kg	$1.6x10^{-19}$ kg	$1.67x10^{-27}$ kg✓
9	Charge on an electron is	$1.6x10^{-17}$ C	$1.6x10^{-34}$ C	$1.6x10^{-24}$ C	$1.6x10^{-19}$ C✓
10	1 amu is equal to	$1.66x10^{-24}$ kg	$1.66x10^{-19}$ kg	$1.66x10^{-34}$ kg	$1.66x10^{-27}$ kg✓
11	For an atom having atomic number 'Z' and atomic mass 'A' the number of neutrons in the nucleus is N=	z	A	A-Z✓	A+Z
12	Isobars have the same	Mass number✓	Atomic number	Mass and atomic number	Avogadro's number
13	A mass spectrograph sorts out	molecules ✓.	atoms	elements	isotopes✓
14	Extremely penetrating particle are	Neutron	Alpha particles	Beta particles	Gamma particles
15	The chemical behavior of an atom is determined by	Mass number	Number of isotopes	Atomic number✓	nucleus
16	The mass of positron is same as that of	neutron	proton	deuteron	electron✓
17	Positrons are prepared in a process of	. fission	x-rays	Annihilation of matter	✓ Pair production✓

18	The amount of energy required to break the nucleus is called	Kinetic energy	Potential energy	Nuclear energy	Binding energy✓
19	Mass defect per nucleon is called	Packing fraction	Average energy of nucleus	Average energy of reaction	Binding energy of nucleus✓
20	1 amu is equal to	9.315 MeV	93.15 MeV	2.224 MeV	931.5 MeV✓
21	Radioactivity was discovered in 1896 by	Madame Curie	Rutherford	J.J. Thomson	H.Becquerel
22	When a nucleus emits an alpha particle, its atomic mass drops by	2	1	3	$_4$✓
23	The elements showing radioactivity have atomic number 'Z'	Z>80	Z<82	Z>82✓	Z<70
24	The half life of a radio-active element is given by	$T_{1/2}$=0.60 3λ	$T_{1/2}$=0.603λ	$T_{1/2}$=0.698λ	$T_{1/2}$=0.693/λ✓
25	Curie is a unit of	conductivity	resistivity	Binding energy	Radioactivity✓
26	The reciprocal of decay constant of a radioactive element is	Mean life✓	Total life	life	Half life✓
27	β-particles are	Hydrogen nuclei	electrons✓	photons	positrons
28	Gamma rays consist of a stream of	electron s	protons	Photons✓	positrons
29	Alpha particles are	electron	photons	Hydrogen nuclei	Helium Nuclei✓
30	The rate of decay of radioactive substance	Is constant	Decreases exponentially	Varies inversely with time	Decreases linearly with time

Prof. Muhammad Shahid Mirza (0321-7814911)
Prof. Nveed Ahmad Janjua (0302-4425094)
111-C Peoples Colony No.01 Refuljent Public School. Faisalabad
Contacts: 0300-4590930, 0300-7618083 & 0331-7814911

			with time✓		
31	The binding energy per nucleon is	Greatest for heavy nuclei	Least for heavy nuclei	Greatest for light nuclei	Greatest for medium weight nuclei✓
32	A Curie represents a very strong source of	α-particles	β-particles	γ-rays	radioactivity✓
33	Which one of the following is not affected by the electric or magnetic field	α-particles	β-particles	protons	γ-rays✓
34	During fission process, a large amount of	Heat energy is released✓	Nuclear energy is released	Electrical energy is released	Chemical energy is released
35	The process in which a heavy nucleus is broken into two intermediate nuclei with the release of energy is called	fusion	fission✓	Chain reaction	Chemical reaction
36	Controlled fission chain reaction is maintained in a	Nuclear react r✓	Linear accelerator	Cyclotron	Stellerator
37	Fission chain reaction is controlled by	Platinum rods	Iron rods	Graphite rods	Cadmium rods✓
38	The mass of fissionable material required for self-sustaining chain reaction is called the	Atomic mass	Fermi mass	Supper critical mass	uncontrolled Critical mass✓
39	The moderator used in nuclear reactor is	a uminiu m	sodium	calcium	graphite✓

40	The atomic bomb is an example of	.Controlled fission chain reaction	Controlled nuclear fusion	Uncontrolled nuclear fusion	fission chain reaction✓
41	Tick the correct statement	Moderator absorb fast neutrons	Moderator reflect fast neutrons	Moderator stop fast neutrons	Moderator slow down fast neutrons✓
42	In liquid metal fast breeder reactors, the type of uranium used is	$_{92}U^{235}$	$_{92}U^{239}$	$_{92}U^{234}$	$_{92}U^{238}$✓
43	The process in which two or more light nuclei combine together to form a heavier nucleus with release of energy is called	fission	Fission chain reaction	Chain reaction	fusion✓
44	The example of fusion reaction is	Formation of water from oxygen and hydroge n	Formation of barium and krypton from uranium	Formation of deuteron by the capture of neutron with proton	The formation of helium from hydrogen✓
45	Materials can be identified by measuring their	hardnes s	density	mass	Half life ✓
46	When an alpha particle collides with an atom of a gas, it knocks out	neutron s	Electrons	positrons	Protons✓
47	Beta particle ionizes an atom due to	Electrostatic force of attracti on	Direct collision	Gravitational force	Electrostatic force of

					repulsion✓
48	The beta particles have ---------- path	Circular	elliptical	curved	Erratic✓
49	Beta particles posses greater penetration power than that of alpha particles due to its	High ionization power	Greater mass	Lower mass	Lower ionization power✓
50	Gamma rays are electromagnetic waves like	Heat waves	x-rays✓	Light waves	All of above
51	Gamma rays have penetration power	Less than beta rays	Less than alpha rays	Greater than alpha rays✓	Both (a) & (b)
52	Gamma rays are	High energy photons	Highly penetrating	Electromagnetic waves	All of above ✓
53	Capture of a neutron by a nucleus results in the formation of	triton	deutron	proton	Radio isotope✓
54	Wilson cloud chamber is an instrument used for	Accelerating positively charged particles	Accelerating negatively charged particles	Making the path of ionizing particles visible✓	All of above
55	Geiger counter is a device to detect	Nuclearradiations.com✓	momentum	mass	charge
56	Geiger counter was designed by	blogspot Rutherford and thomson	Geiger and wilson	Lawrence and geiger	Geiger and Muller✓
58	Which of the following will be better shield against	air	water	Heavy water	lead✓

	gamma rays	.			
59	Gieger Muller counter always uses	Argon and alcohol	Bromine mixed with argon✓	Argon only	Different gases at different pressures
60	Specially designed solid state detector can be used to detect	Alpha rays	Beta rays	Gamma rays	All of above ✓
61	The maximum safe limit dose persons working in nuclear power station is				
62	Thyroid cancer is cured by	Cobalt-60	Nickel-63	Cesium-137	Iodine-131✓
63	Coloured tv and micro wave oven emits	Beta rays	Alpha rays	x-rays	Gamma rays✓
64	The most useful tracer is	Cobalt-60	Nickel-63	Cesium-137	Carbon-14✓
65	One unified mass scale is equal to	1.6606×10^{-24} kg	1.6606×10^{-31} kg	1.6606×10^{27} kg	1.6606×10^{-27} kg✓
66	The SI unit of radiation dose is	curie	rem	roentgen	gray✓
67	Sub atomic particles are divide into	Photons	leptons	hadrons	All of above ✓
68	Which of the following belong are leptons	neutrons	electrons	muons	All of above ✓
69	After two half lives, the number of decayed nuclei of an element are	N	N/2	3N/4	N/4✓
70	The charge number of $^{141}B_{56}$ is	141	197	85	56✓
71	The mass of beta particles is equal to that of	neutron	proton	boron	electron✓
72	Which of the following have no charge	Beta particles	Alpha particles	Cathode rays	Gamma rays✓

73	The back ground radiation to which we are exposed on the average per year is	20 mSv	2 Sv	0.01 Sv	2m Sv✓
74	A pair of quark and anti-quark makes a	baryon	photon	proton	Meson✓
75	The number of neutrons in the nucleus of $^{7}Li_{3}$ are	10	2	3	4✓
76	Gamma rays are emitted by de-excitation of	An atom	molecule	element	nucleus✓
77	Fluorescence is the property of	High frequency particles ✓	Low frequency particles	Moderate frequency particles	Visible light
78	The number of protons in an atom are always equal to number of	Neutrons	Electrons✓	Positrons	Meuons
79	Which nuclear reaction takes place in the sun and stars	Fission	Chemical	Fusion✓	Mechanical
80	Thyroid glands play major role in distribution of	com Iodine ✓	Cobalt	Iron	None
81	Three up quarks combine to make a new particle, the charge number on this particle is	1 .	2✓	3	1/2
82	A high potential difference of……..is used in G.M counter	400V✓	1000V	5000V	4000V
83	In Wilson cloud chamber, we use	Alcohol vapours✓	Neon gas	Bromine gas	Water vapours
84	The energy released by fusion of two deuterons into a helium nucleus is about	200MeV down the✓ neutrons .	24MeV✓ rest	1.02MeV neutrons	7.7MeV neutrons

85	Dr. Abdus salam unified electromagnetic force and	Weak nuclear force✓	Strong nuclear force	Magnetic force	Gravitational force
86	Cobalt-60 emits gamma rays of energy	117MeV	11.7MeV	1.17MeV✓	1.17BeV
87	Which of the following statement is correct	Moderators slow	Moderators bring the neutron to	Moderators absorbs the	Moderators reflects the