MSBTE

I-SCHEME

SEMESTER - I

BASIC PHYSICS

22102

MCQs

ACADEMIC YEAR: 20 - 20 2020 - 2021

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Contents

Unit – I: Units and Measurements

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	Property of matter that can be measured with measuring instrument is called _____.	physical quantity	chemical quantity	unit	both (A) and (B)	A
2	Quantities which describe laws of physics are called _____ quantities.	Atomic	Nuclear	Molecular	Physical	D
3	_____ is needed for the experimental verifications of various theories in physics.	Unit	Symbol	Measurement	Instrument	C
4	Physical quantities are _____ property of matter.	immeasurable	measurable	reliable	unreliable	B
5	If the length of table is 2 metre, then 2 is called as _____.	standard	unit	magnitude	quantity	C
6	If the length of table is 2 metre, then metre is called as _____.	standard	unit	magnitude	quantity	B
7	The length of the book is 15 cm, here 15 is _____.	standard	unit	magnitude	quantity	C
8	Which is the standard used, if the length of table is 2 metre?	metre	kilometre	centimetre	None of these	A
9	Which are the standard requirements of good unit?	Universally accepted	Well defined	Invariable	All of the these	D
10	The _____ used for the measurement of physical quantity is called unit of that quantity.	quantity	unit	standard	dimension	C
11	A set of fundamental and derived units is called _____.	quantity	dimension	system of units	system of quantity	C
12	Which of the following quantity is measured in Kelvin?	length	mass	time	temperature	D
13	To calculate dimension of table, which of the following quantity is used?	length	mass	time	None of these	A
14	Which of the following is fundamental physical quantity?	volume	velocity	force	temperature	D
15	Which of the following remains same for all unit system?	metre	kilogram	second	None of these	C
16	In a given measurement, error is _____.	uncertainty	mistake	inaccurate	None of these	A
17	The reference standard used for the measurement of a physical quantity is called _____.	standard quantity	dimension	constant	unit	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
18	The standard used for the measurement of physical quantity is called its _____.	symbol	unit	sub-unit	none	B
19	Which of the following is NOT a characteristic of standard unit?	invariable	reproducible	available	perishable	~~A~~ D
20	Which of the following is CORRECT requirement of standard unit?	indefinite	unaccepted	variable	reproducible	D
21	A set of fundamental and derived units is known as _____ of units.	metric	complementary	system	supplementary	C
22	S.I system of unit contains _____ fundamental units.	2	7	9	many	B
23	S.I system of unit has _____ supplementary units.	2	7	9	many	A
24	The units of fundamental physical quantities are called _____ units.	fundamental	derived	supplementary	complementary	A
25	The units of derived quantities are called _____ units.	fundamental	derived	supplementary	complementary	B
26	Lengths, mass and time are _____ quantities.	fundamental	derived	supplementary	complementary	A
27	Current, temperature. Luminous intensity and amount of substance are _____ quantities.	fundamental	derived	both (a) and (b)	none	A
28	According to the nature and existence of the physical quantities, they are classified as	fundamental	derived	both (a) and (b)	none	C
29	Physical quantities which are base and independent are called _____ quantities.	fundamental	derived	both (a) and (b)	none	A
30	The quantities that are independent of other quantities are called _____ quantities.	fundamental	derived	both (a) and (b)	none	A
31	Physical quantities which depend on other physical quantities are called _____ quantities.	fundamental	derived	both (a) and (b)	none	B
32	The quantities that are derived using the fundamental quantities are called _____ quantities.	fundamental	derived	both (a) and (b)	none	B
33	Which one of the following is NOT the fundamental physical quantity?	Electric current	Luminous intensity	Temperature	Electric intensity	D
34	The SI unit of length is _____.	metre	miles	centimeter	yards	A
35	The SI unit of mass is _____.	gram	kilogram	pound	lbs	B

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36	The SI unit of time is _____.	second	minute	hour	light year	A
37	The SI unit of temperature is _____.	kelvin	Celsius	fahrenheit	centigrade	A
38	The SI unit of electric current is _____.	watt	coulomb	joule	ampere	D
39	The SI unit of luminous intensity is _____.	candela	mole	coulomb	lux	A
40	The SI unit of amount of substance is _____.	candela	mole	weber	metre	B
41	The SI unit of plane angle is _____.	degree	radian	steradian	m/s	B
42	The SI unit of solid angle is _____.	degree	radian	steradian	m/s	C
43	The symbol for S.I unit of length is ___.	cm	mm	km	m	D
44	The symbol for S.I unit of mass is ___.	kg	g	mg	lbs	A
45	The symbol for S.I unit of electric current is ___.	a	A	I	i	B
46	The symbol for S.I unit of temperature is ___.	°K	°k	°F	°C	A
~~47~~	~~Which of the following system of units is not based on units of mass, length and time alone?~~	~~M.K.S~~	~~C.G.S~~	~~F.P.S~~	~~S.I~~	~~D~~
48	Meter is the unit of length measured in _____ system.	M.K.S	C.G.S	F.P.S	zero	A
49	Centimeter is the unit of length measured in _____ system.	F.P.S	C.G.S	M.K.S	S.I	B
50	Foot is the unit of length measured in _____ system.	F.P.S	C.G.S	M.K.S	S.I	A
51	Pound is the unit of mass measured in _____ system.	F.P.S	C.G.S	M.K.S	S.I	A
52	Gram is the unit of mass measured in _____ system.	F.P.S	C.G.S	M.K.S	S.I	B
53	Which system measures the mass in terms of kilogram?	S.I	M.K.S	Both (a) and (b)	None	C
54	The physical quantity having the same unit in all the systems of unit is _____.	length	mass	time	current	C
55	Which fundamental physical quantity has the same unit in F.P.S, C.G.S, M.K.S and S.I system?	Length	Mass	Time	Temperature	~~D~~ C
56	The S.I unit of area is _____.	mm^2	cm^2	m^2	km^2	C
57	The S.I unit of volume is _____.	mm^3	cm^3	m^3	c.c	C
58	The S.I unit of density is _____.	g/cm^3	kg/m^3	kg/cm^3	g/m^3	B
59	The S.I unit of velocity is _____.	m/s	cm/s	m/s^2	cm/s^2	A

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60	The S.I unit of acceleration is _____.	m/s	cm/s	m/s^2	cm/s^2	C
61	The S.I unit of momentum is _____.	kg-m/s	g-cm/s	$kg-m/s^2$	$gm-cm/s^2$	A
62	The S.I unit of impulse is _____.	kg-m/s	g-cm/s	$kg-m/s^2$	$gm-cm/s^2$	A
63	The M.K.S unit of force is _____.	dyne	newton	$gm-cm/s^2$	kg-m/s	B
64	The S.I. unit of force is _____.	dyne	$gm-cm/s^2$	$kg-m/s^2$	kg-m/s	C
65	The S.I. unit of force is _____.	N	$kg-m/s^2$	dyne	Both (a) and (b)	D
66	The C.G.S unit of force is _____.	dyne	newton	poise	$kg-m/s^2$	A
67	The S.I. unit of work is _____.	joule	calorie	coulomb	farad	A
68	The S.I. unit of energy is _____.	joule	calorie	coulomb	farad	A
69	The S.I. unit of power is _____.	joule	watt	coulomb	ohm	B
70	The S.I. unit of electric charge is _____.	joule	watt	coulomb	ohm	C
71	The S.I. unit of electric current is _____.	coulomb	ampere	volt	watt	B
72	The S.I. unit of electric potential is _____.	coulomb	ampere	volt	watt	C
73	The S.I. unit of electric resistance is _____.	coulomb	ampere	volt	ohm	D
74	The S.I. unit of electric capacitance is _____.	watt	ampere	volt	farad	D
75	The unit of length, mass and time in _____ system are centimetre, gram and second.	FPS	MKS	CGS	SI	C
76	Which of the following is not the unit of power?	W	J/s	N-m/s	N/s	D
~~77~~	~~Which of the following is not a physical quantity?~~	~~kilogram~~	~~meter~~	~~kelvin~~	~~All of the above~~	~~D~~
~~78~~	~~Which of the following is not a physical quantity?~~	~~second~~	~~ampere~~	~~candela~~	~~All of the above~~	~~D~~
~~79~~	~~Which of the following is not a physical quantity?~~	~~Celsius~~	~~ampere~~	~~candela~~	~~All of the above~~	~~D~~
~~80~~	~~Words or letters added before a unit and stand for multiples or sub-multiples of that unit is called _____.~~	~~prefix~~	~~suffix~~	~~sub-units~~	~~rate~~	~~A~~
81	Meter scale is used to measure _____.	length	mass	weight	force	A
82	Measuring cylinder is used to measure _____ of liquid.	area	mass	volume	density	C
83	If the length of a cube is 2 cm, its volume will be _____.	$8\ cm^2$	$8\ cm^3$	8 cm	$8\ m^3$	B
~~84~~	~~Prefixes are used to express quantities which are -~~	~~very small~~	~~very large~~	~~both (a) and (b)~~	~~fixed~~	~~C~~
~~85~~	~~Multiples and sub-multiples of unit are called as _____.~~	~~prefix~~	~~suffix~~	~~sub-units~~	~~rate~~	~~A~~

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86	1 gigahertz =	10^{9} Hz	10^{12} Hz	10^{6} Hz	10^{3} Hz	A
87	1 millimetre =	10^{-6} metre	10^{-3} metre	10^{-9} metre	10^{-1} metre	B
88	1 nano =	10^{-3}	10^{-6}	10^{-9}	10^{-12}	C
89	1 pico =	10^{-3}	10^{-6}	10^{-9}	10^{-12}	D
90	1 micro =	10^{-3}	10^{-6}	10^{-9}	10^{-12}	B
91	1 terabyte =	10^{9} byte	10^{12} byte	10^{6} byte	10^{3} byte	B
92	1 mega =	10^{9}	10^{12}	10^{6}	10^{3}	C
93	One terabyte is equivalent to ____ byte.	10^{12}	10^{9}	10^{6}	10^{3}	A
94	One GB is equal to ____ byte.	10^{12}	10^{9}	10^{6}	10^{3}	B
95	One MW is equal to ____ W.	10^{12}	10^{9}	10^{6}	10^{3}	C
96	One km is equal to ____ m.	10^{12}	10^{9}	10^{6}	10^{3}	D
97	1 mV = ____ V.	10^{-3}	10^{-6}	10^{-9}	10^{-12}	A
98	1 µA = ____ A.	10^{-3}	10^{-6}	10^{-9}	10^{-12}	B
99	1 nm = ____ m.	10^{-3}	10^{-6}	10^{-9}	10^{-12}	C
100	1 mm = ____ m.	10^{-3}	10^{-6}	10^{-9}	10^{-12}	A
101	1 pF = ____ F.	10^{-3}	10^{-6}	10^{-9}	10^{-12}	D
~~102~~	~~An error due to use of faculty instrument is called _____ error.~~	~~random~~	~~instrumental~~	~~systematic~~	~~zero~~	~~C~~
103	Errors caused by virtue of certain definite rule or known causes are called _____ error.	random	instrumental	systematic	zero	C
104	Error that occurs due to sudden change in experimental condition even though carried out carefully with a proper instrument without any fault is called _____ error.	random	instrumental	systematic	zero	A
~~105~~	~~If the pointer of a magnetic compass is not pivoted at the center of the magnetic scale, which type of error will take place?~~	~~Random error~~	~~Instrumental error~~	~~Systematic error~~	~~Zero error~~	~~C~~
~~106~~	~~The error due to a defective alignment of the instrument by observer is _____ error.~~	~~random~~	~~instrumental~~	~~systematic~~	~~zero~~	~~C~~
107	Parallax error is _____ error.	random	instrumental	systematic	zero	C
108	Same person may get different readings because of human limitations, and then the error caused is called _____ error.	random	instrumental	systematic	zero	A

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109	Errors can be minimized by -	taking large magnitude of the quantity to be measured	consider mean value by taking multiple readings	using smallest least count instrument	All of the these	D
110	In estimation of error, the difference in magnitude of mean (true) value and measured value is called _____ error.	absolute	average absolute	relative	percentage	A
111	In estimation of error, the mean of all absolute error in a measurement is called _____ error.	absolute	average absolute	relative	percentage	B
112	In estimation of error, the ratio of average absolute error to the mean (true) value is called _____ error.	absolute	average absolute	relative	percentage	C
113	When the ratio of average absolute error to the mean (true) value is expressed in percentage, then the error is called _____ error.	absolute	average absolute	relative	percentage	D
114	The smallest measurement that can be accurately measured by an instrument is called _____.	least count	count	range	None of these	A
115	The maximum correct measurement that can be taken accurately by an instrument is called _____.	least count	count	range	None of these	C
116	Which of the following instrument will give more accurate measurement?	metre scale	vernier caliper	micrometer screw gauge	measuring tape	C
117	A figure in any place which is reasonably trustworthy or meaningful is called _____.	Accurate figure	Precise figure	Significant figure	None of these	C
118	The difference between the true value and measured value is called _____.	mistake	error	figures	fault	B
119	The difference between the actual value and measured value is called _____.	mistake	fault	uncertainty	error	D
~~120~~	~~There are ____ types of error~~	~~2~~	~~3~~	~~4~~	~~0~~	~~B~~
~~121~~	~~The errors caused due to use of faulty instruments are called _____ error.~~	~~instrumental~~	~~random~~	~~systematic~~	~~personal~~	~~A~~

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
122	Errors caused due to faulty construction or inappropriate calibration of instrument is called _____ error.	instrumental	random	systematic	personal	A
123	Instrumental error is also called as _____ error.	constant	random	systematic	personal	A
124	Error caused due to sudden change in experimental conditions is called _____ error.	instrumental	random	systematic	personal	B
~~125~~	~~Accidental error is also called as _____ error.~~	~~constant~~	~~random~~	~~systematic~~	~~personal~~	~~B~~
126	Errors caused due to change in temperature or pressure, change in humidity, fluctuation in voltage are _____ error.	instrumental	random	systematic	personal	B
127	Errors caused by virtue of certain definite rule or known causes are called _____ error.	instrumental	random	systematic	accidental	C
128	_____ Errors are caused due to the defective setting or adjustment of the instruments by the experimenter.	Instrumental	Random	Systematic	Accidental	C
~~129~~	~~Persistent error is also called as _____ error.~~	~~instrumental~~	~~random~~	~~systematic~~	~~constant~~	~~C~~
~~130~~	~~Personal error is also called as _____ error.~~	~~instrumental~~	~~random~~	~~systematic~~	~~constant~~	~~C~~
~~131~~	~~If the pointer of the voltmeter is not exactly at the zero of the scale then the error is called _____ error.~~	~~instrumental~~	~~systematic~~	~~personal~~	~~random~~	~~A~~
132	Zero error of an instrument introduces _____ error.	instrumental	systematic	personal	random	A
~~133~~	~~If the pointer of a magnetic compass is not pivoted at the center of the magnetic scale, _____ error will occur.~~	~~instrumental~~	~~random~~	~~systematic~~	~~constant~~	~~C~~
134	_____ error may be due to a defective alignment of the instrument by observer.	Instrumental	Random	Systematic	Constant	C
135	Error can be caused due to some personal habit of the observer is called _____ error.	instrumental	random	systematic	constant	C
~~136~~	~~Parallel error is called _____ error.~~	~~instrumental~~	~~random~~	~~systematic~~	~~constant~~	~~C~~
137	Error due to non-removal of parallax between pointer and its image in case of magnetic compass needle causes _____ error.	instrumental	persistent	personal	random	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
138	Accidental error can be minimized by	taking only one reading	taking small magnitude of the quantity	using largest least count instrument	using smallest least count instrument	D
~~139~~	~~Constant error can be caused due to~~	~~faulty construction of instrument~~	~~wrong setting of instrument~~	~~lack of concentration of observer~~	~~wrong procedure of instrument handling~~	~~A~~
140	Instrumental error can be minimized by	taking large number of readings	using different accurate instrument	adjusting zero of the instrument	maintaining the temperature	C
141	Errors can be minimized by	taking large quantity of magnitude	using ~~largest~~ smallest least count instrument	taking ~~only one~~ many reading	~~using smallest least count instrument~~	D All of the above
142	Errors in any observation can be minimized by	taking ~~small~~ large quantity of magnitude	using ~~largest~~ smallest least count instrument	taking mean value with multiple reading	~~using smallest least count instrument~~	D All of the above
143	The true value or correct value or average value or mean value of the physical quantity to be measured is represented as -	$\bar{x}$	$\overline{\Delta x}$	x_i	r	A
144	The lengths of compass box measured by five students are 20.5 cm, 20.6 cm, 20.6 cm, 20.7 cm, and 20.5 cm respectively. What will be the average value of length of compass box?	20.56 cm	20.57 cm	20.58 cm	20.59 cm	C
145	The measured value of the physical quantity to be measured is represented as -	$\bar{x}$	$\overline{\Delta x}$	x_i	r	C
146	The difference between the magnitude of true value and measured value is called the _____ error.	absolute	average absolute	relative	percentage	A
147	$\Delta x_i=\lvert x - x_i \rvert$ represents_____ error.	absolute	average absolute	relative	percentage	A
148	The average of all absolute error in a measurement is called _____ error.	absolute	average absolute	relative	percentage	B
149	The mean of all absolute error in a measurement is also called as _____ error.	absolute	average absolute	relative	percentage	B
150	$\sum\Delta x/n$ represents _____ error.	absolute	average absolute	relative	percentage	B
151	$\Delta\bar{x}$ represents _____ error.	absolute	average absolute	relative	percentage	B
152	The ratio of average absolute error to the true value is called _____ error.	absolute	average absolute	relative	percentage	C
153	$\Delta\bar{x}/\bar{x}$ represents _____ error.	absolute	average absolute	relative	percentage	C

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154	Relative error expressed in percentage is called _____ error.	absolute	average absolute	relative	percentage	D
155	If corrected average reading is 0.2525 cm and average absolute error is 0.31 cm, then relative error is _____.	1.722	0.01227	0.1227	1.23	D
156	The mass of the object is 25±0.02 gm. Percentage error in this measurement is _____.	0.8 ~~0.00008~~	0.008 ~~0.0008~~	0.08 ~~0.0008~~	8.0 ~~0.000008~~	C
157	In given measurement, if percentage error is 12.3, then relative error is _____.	0.123	0.0123	0.00123	0.00123	A
158	The internal diameter of hollow cylinder measured by Vernier caliper is 1.45 cm. if the least count of Vernier caliper is 0.01 cm, calculate percentage error.	0.69 ~~0.0069~~	0.0689	6.89 ~~0.000689~~	0.0069 ~~0.6896~~	A
159	Diameter of metal ball measured by micrometer screw gauge is 0.628 cm. if the least count of micrometer is 0.001 cm, calculate percentage error.	0.016 ~~0.00159~~	0.159 ~~0.01592~~	1.59 ~~0.000159~~	0.015 ~~0.1592~~	A
160	If the thickness of wire measured by micrometer screw gauge is 0.056 cm and zero error in micrometer is - 0.002 cm. The corrected reading for thickness of wire is _____.	0.054 cm	0.056 cm	0.058 cm	0.052 cm	C ~~A~~
161	Calculate percentage error in the measurement of density of cube, if the mass has 3% error and length has 2% error.	6%	7%	8%	9%	D
162	$\Delta\bar{x}/\bar{x} \times 100$ represent _____ error.	absolute	average absolute	relative	percentage	D
163	In dimensional formula $[L^1M^2T^1]$, the dimension of L stands for -	Length	Mass	Time	None of these	A
164	In dimensional formula $[L^0M^{-1}T^2]$, the dimension of M stands for -	Length	Mass	Time	None of these	B
165	In dimensional formula $[L^2M^0T^{-1}]$, the dimension of T stands for -	Length	Mass	Time	temperature	C
166	The dimensional formula for work is _____.	$[L^{-2}\,M^1\,T^{-2}]$	$[L^2\,M^{-1}\,T^2]$	$[L^2\,M^1\,T^{-2}]$	$[L^2\,M^1\,T^2]$	~~D~~ C
167	$[L^1\,M^1\,T^{-2}]$ is the dimensional formula of -	Force	Pressure	Volume	Density	A
168	$[L^2\,M^1\,T^{-2}]$ is the dimensional formula of -	Force	Pressure	Energy	Density	C

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169	Dimensional formula for density is _____.	$[L^{-3} M^{1} T^{0}]$	$[L^{-2} M^{1} T^{0}]$	$[L^{3} M^{1} T^{0}]$	$[L^{2} M^{1} T^{0}]$	A
170	Which of the following quantity has same dimensional formula?	Displacement, Velocity	Displacement, Acceleration	Velocity, Acceleration	Velocity, Speed	D
171	In dimensional equation $[L^{a} M^{b} T^{c}]$; a, b, c are called _____.	dimension	dimensional formula	base quantity	derived quantity	A
~~172~~	~~$[L^{-1} M^{1} T^{-2}]$ is the dimensional formula of _____.~~	~~force~~	~~Energy~~	~~power~~	~~energy density~~	~~D~~
173	$[L^{2} M^{1} T^{-2}]$ is the dimensional formula of _____.	force	Energy	power	heat	B
174	$[L^{0} M^{0} T^{0}]$ is the dimensional formula of _____ constant.	Joule's	Force	gravitational	work	A
~~175~~	~~$[L^{-1} M^{1} T^{0}]$ is the dimensional formula of _____.~~	~~linear density~~	~~mass density~~	~~relative density~~	~~volume density~~	~~A~~
~~176~~	~~The dimensional formula of mass density is _____.~~	~~$[L^{-1} M^{1} T^{0}]$~~	~~$[L^{-3} M^{1} T^{0}]$~~	~~$[L^{2} M^{1} T^{-2}]$~~	~~$[L^{-1} M^{1} T^{-2}]$~~	~~B~~
~~177~~	~~$[L^{0} M^{0} T^{0}]$ is the dimensional formula of _____.~~	~~linear density~~	~~mass density~~	~~relative density~~	~~volume density~~	~~C~~
~~178~~	~~The dimensional formula of specific gravity is _____.~~	~~$[L^{-1} M^{1} T^{0}]$~~	~~$[L^{0} M^{0} T^{0}]$~~	~~$[L^{2} M^{1} T^{-2}]$~~	~~$[L^{-1} M^{1} T^{-2}]$~~	~~B~~
~~179~~	~~$[L^{3} M^{-1} T^{0}]$ is the dimensional formula of _____.~~	~~specific gravity~~	~~specific time~~	~~specific volume~~	~~specific density~~	~~C~~
180	The dimensional formula of time period is _____.	$[L^{-1} M^{1} T^{0}]$	$[L^{0} M^{0} T^{0}]$	$[L^{0} M^{0} T^{1}]$	$[L^{-1} M^{1} T^{-2}]$	C
181	$[L^{0} M^{0} T^{-1}]$ is the dimensional formula of _____ .	time	Frequency	volume	density	B
182	The dimensional formula of distance is _____.	$[L^{0} M^{1} T^{0}]$	$[L^{0} M^{0} T^{0}]$	$[L^{1} M^{0} T^{0}]$	$[L^{0} M^{0} T^{1}]$	C
183	$[L^{1} M^{0} T^{0}]$ is the dimensional formula of _____ .	time	Speed	velocity	displacement	D
184	The dimensional formula of speed is _____.	$[L^{1} M^{0} T^{-1}]$	$[L^{1} M^{-1} T^{0}]$	$[L^{0} M^{1} T^{1}]$	$[L^{-1} M^{1} T^{1}]$	A
185	$[L^{1} M^{0} T^{-1}]$ is the dimensional formula of _____ .	length	Time	velocity	displacement	C
186	The dimensional formula of velocity gradient is _____.	$[L^{0} M^{0} T^{-1}]$	$[L^{0} M^{-1} T^{0}]$	$[L^{-1} M^{0} T^{0}]$	$[L^{-1} M^{1} T^{1}]$	A

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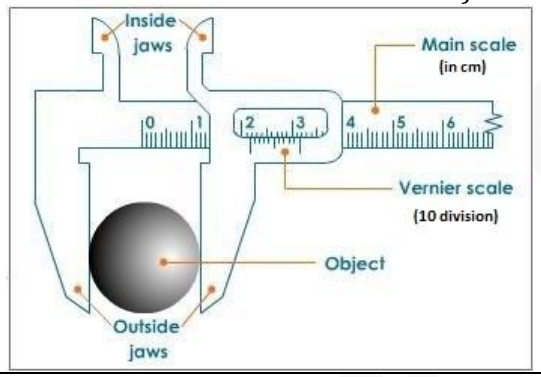
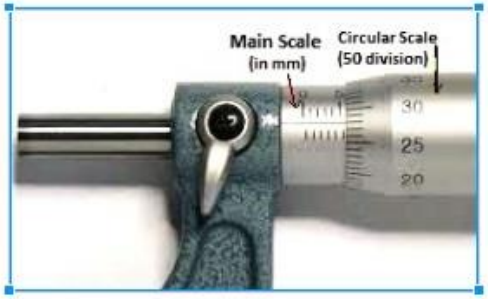
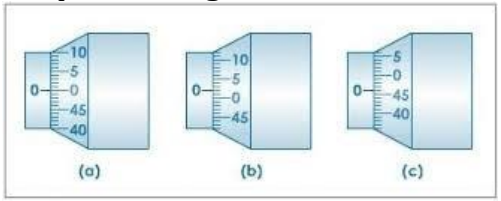
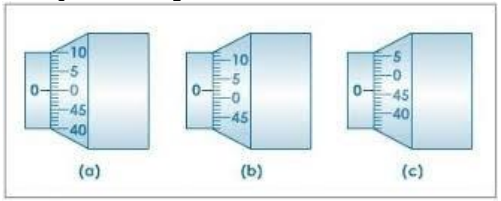
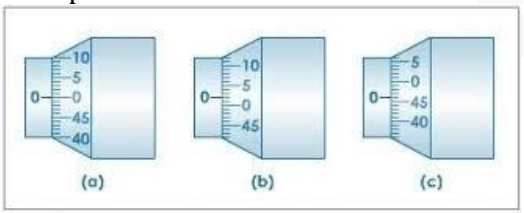
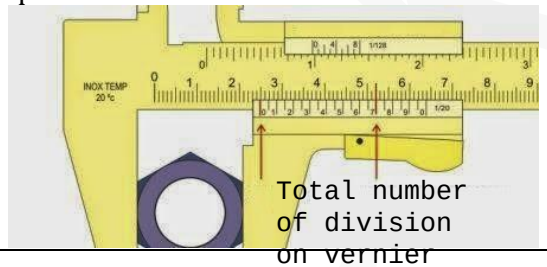
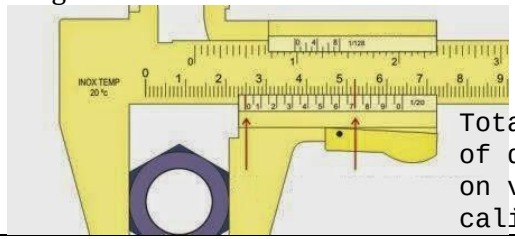
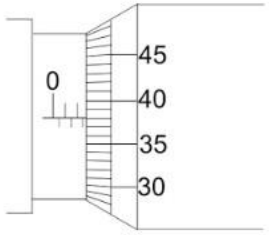
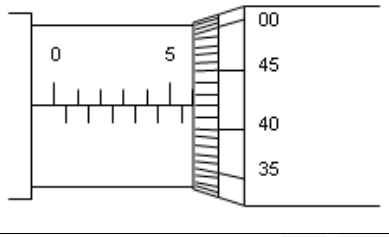
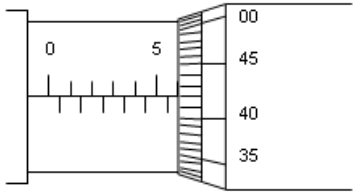
187	$[L^{1} M^{0} T^{-2}]$ is the dimensional formula of _____ .	velocity	Acceleration	momentum	force	B
188	The dimensional formula of momentum is _____.	$[L^{1} M^{1} T^{-1}]$	$[L^{1} M^{1} T^{-2}]$	$[L^{-1} M^{0} T^{0}]$	$[L^{-1} M^{1} T^{1}]$	A
189	$[L^{1} M^{1} T^{-2}]$ is the dimensional formula of _____ .	velocity	Acceleration	momentum	force	D
~~190~~	~~The dimensional formula of force constant is _____.~~	~~$[L^{1} M^{1} T^{-1}]$~~	~~$[L^{1} M^{1} T^{-2}]$~~	~~$[L^{-1} M^{0} T^{0}]$~~	~~$[L^{0} M^{1} T^{-2}]$~~	~~D~~
~~191~~	~~$[L^{0} M^{1} T^{-2}]$ is the dimensional formula of _____.~~	~~spring constant~~	~~Acceleration~~	~~momentum~~	~~force~~	~~A~~
192	The dimensional formula of impulse is _____.	$[L^{1} M^{1} T^{-1}]$	$[L^{1} M^{1} T^{-2}]$	$[L^{-1} M^{0} T^{0}]$	$[L^{0} M^{1} T^{-2}]$	A
193	$[L^{2} M^{1} T^{-2}]$ is the dimensional formula of _____ .	work	Power	pressure	force	A
194	The dimensional formula of energy is _____.	$[L^{1} M^{1} T^{-1}]$	$[L^{2} M^{1} T^{-2}]$	$[L^{-1} M^{0} T^{0}]$	$[L^{0} M^{1} T^{-2}]$	B
~~195~~	~~$[L^{-1} M^{1} T^{-2}]$ is the dimensional formula of _____.~~	~~energy~~	~~Density~~	~~energy density~~	~~power~~	~~C~~
196	The dimensional formula of power is _____.	$[L^{1} M^{1} T^{-1}]$	$[L^{2} M^{1} T^{-2}]$	$[L^{2} M^{1} T^{-3}]$	$[L^{0} M^{1} T^{-2}]$	C
197	$[L^{-1} M^{1} T^{-2}]$ is the dimensional formula of _____ .	work	Energy	power	pressure	D
198	The dimensional formula of temperature is _____.	$[L^{0} M^{0} T^{0} \theta^{1}]$	$[L^{2} M^{1} T^{-2} \theta^{1}]$	$[L^{2} M^{1} T^{-3} \theta^{1}]$	$[L^{0} M^{1} T^{-2} \theta^{1}]$	A
199	$[L^{-1} M^{0} T^{0} \theta^{1}]$ is the dimensional formula of _____ .	temperature	temp. gradient	Thermal capacity	Specific heat	B
~~200~~	~~The dimensional formula of thermal capacity is _____.~~	~~$[L^{2} M^{1} T^{-2} \theta^{-1}]$~~	~~$[L^{2} M^{1} T^{-2} \theta^{1}]$~~	~~$[L^{2} M^{1} T^{-3} \theta^{1}]$~~	~~$[L^{0} M^{1} T^{-2} \theta^{1}]$~~	~~A~~
201	$[L^{2} M^{0} T^{-2} \theta^{-1}]$ is the dimensional formula of _____ .	temperature	temp. gradient	thermal capacity	specific heat	D
202	The dimensional formula of electric current is _____.	$[L^{0} M^{0} T^{0} I^{1}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{2} M^{1} T^{-3} I^{1}]$	$[L^{0} M^{1} T^{-2} I^{1}]$	A
203	$[L^{0} M^{0} T^{0} I^{1}]$ is the dimensional formula of _____ .	electric charge	electric potential	electric resistance	specific resistance	A
204	The dimensional formula of electric field intensity is _____.	$[L^{1} M^{1} T^{-3} I^{-1}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{2} M^{1} T^{-3} I^{1}]$	$[L^{0} M^{1} T^{-2} I^{1}]$	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
205	$[L^{2} M^{0} T^{0} I^{1}]$ is the dimensional formula of _____ .	electric field intensity	electric flux density	electric resistance	potential difference	B
206	The dimensional formula of electric potential is _____.	$[L^{1} M^{1} T^{-3} I^{-1}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{2} M^{1} T^{-3} I^{-1}]$	$[L^{0} M^{1} T^{-2} I^{1}]$	C
207	$[L^{2} M^{1} T^{-3} I^{-1}]$ is the dimensional formula of _____ .	electric field intensity	electric flux density	electric resistance	potential difference	D
208	The dimensional formula for permittivity of free space is _____.	$[L^{1} M^{1} T^{-3} I^{-1}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{-3} M^{-1} T^{4} I^{2}]$	$[L^{0} M^{1} T^{-2} I^{1}]$	C
209	$[L^{2} M^{1} T^{-3} I^{-2}]$ is the dimensional formula of _____ .	electric field intensity	electric flux density	electric resistance	potential difference	C
210	The dimensional formula for electrical conductance is _____.	$[L^{-2} M^{-1} T^{3} I^{2}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{-3} M^{-1} T^{4} I^{2}]$	$[L^{0} M^{1} T^{-2} I^{1}]$	A
211	$[L^{3} M^{1} T^{-3} I^{-2}]$ is the dimensional formula of _____ .	electric conductance	specific resistance	permittivity of free space	potential difference	B
212	The dimensional formula for conductivity is _____.	$[L^{-2} M^{-1} T^{3} I^{2}]$	$[L^{2} M^{1} T^{-2} I^{1}]$	$[L^{-3} M^{1} T^{4} I^{2}]$	$[L^{-3} M^{-1} T^{3} I^{2}]$	A
213	$[L^{1} M^{0} T^{0} I^{1}]$ is the dimensional formula of _____ .	Magnetic pole strength	Magnetic dipole moment	Permeability of free space	Magnetic field intensity	A
~~214~~	~~The dimensional formula for magnetic dipole moment is _____.~~	~~$[L^{2} M^{0} T^{0} I^{1}]$~~	~~$[L^{2} M^{0} T^{1} I^{0}]$~~	~~$[L^{2} M^{1} T^{0} I^{0}]$~~	~~$[L^{1} M^{2} T^{0} I^{0}]$~~	~~A~~
215	$[L^{1} M^{1} T^{-2} I^{-2}]$ is the dimensional formula of _____ .	Magnetic pole strength	Magnetic dipole moment	Permeability of free space	Magnetic field intensity	C
216	The dimensional formula for magnetic field strength/ magnetic field intensity/ magnetic moment density is _____.	$[L^{-1} M^{0} T^{0} I^{1}]$	$[L^{2} M^{0} T^{1} I^{0}]$	$[L^{2} M^{1} T^{0} I^{0}]$	$[L^{1} M^{2} T^{0} I^{0}]$	A
217	$[L^{2} M^{1} T^{-2} I^{-1}]$ is the dimensional formula of _____	Magnetic pole strength	Magnetic dipole moment	Magnetic flux	Magnetic field intensity	C
218	If $[L^{a} M^{b} T^{c}]$ is the dimensional formula for electric power, find the value of 2a + 5b - 6c.	-9	25	27	30	C
219	If $[L^{a} M^{b} T^{c}]$ is the dimensional formula for force, then find the value of 2a -b -c.	3	-4	6	8	A
220	The dimensional formula for magnetic induction/ magnetic field/ magnetic flux density is _____.	$[L^{0} M^{1} T^{-2} I^{-1}]$	$[L^{2} M^{0} T^{1} I^{0}]$	$[L^{2} M^{1} T^{0} I^{0}]$	$[L^{1} M^{2} T^{0} I^{0}]$	A
221	$[L^{2} M^{1} T^{-2}]$ is the dimensional formula of _____.	energy	Heat	work	all of the above	D

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
222	The dimensional formula for impulse is the same as dimensional formula for _____.	acceleration	force	momentum	power	C
~~223~~	~~The dimensional formula for water equivalent is the same as dimensional formula for _____.~~	~~length~~	~~mass~~	~~weight~~	~~pressure~~	~~B~~
~~224~~	~~The dimensional formula of ratio of specific heat and _____ is same.~~	~~Joule's constant~~	~~heat~~	~~work~~	~~energy~~	~~A~~
225	The dimensional formula for frequency is the same as dimensional formula for _____.	velocity	gradient	velocity gradient	time	C
~~226~~	~~The dimensional formula for thermal capacity is the same as dimensional formula for _____.~~	~~Universal gas constant~~	~~Force constant~~	~~Ratio of specific heat~~	~~Mechanical equivalent of heat~~	~~A~~
227	The Joule's constant is also called as _____.	Universal gas constant	Force constant	Ratio of specific heat	Mechanical equivalent of heat	D
~~228~~	~~The circular divisions of shown screw gauge are 50. It moves 0.5 mm on main scale in one rotation. The diameter of the ball is _____.~~	~~2.25 mm~~	~~2.20 mm~~	~~1.20 mm~~	~~1.25 mm~~	
229	A screw gauge gives Main scale reading as 0 mm and circular scale division as 52 while measuring the diameter of a wire. What will be the diameter of wire?	0.52 cm	0.052 cm	0.026 cm	0.005 cm	B
230	A significant figure is defined as a figure in any place which is reasonably _____.	meaningless	meaning full	not important	non-considerable	B
231	Significant figures depend upon the _____ of the measuring instrument.	length	readings	number	accuracy	D
232	Smallest possible division up to which an instrument can measure is called _____.	most count	least count	error	correction	B
233	The road distance between Mumbai to Pune is 149.06 km; the number of significant in this distance is ___.	5	4	3	2	A
234	Non-zero digits are always _____.	non-significant	significant	worthless	useless	B
235	The digits 1, 2, 3, 4, 5, 6, 7, 8, 9 are _____ significant.	least	sometimes	always	not	C
236	The number of significant figures in 0.0009 is	1	2	3	4	A
237	The number of significant figures in 0.400 is	4	3	2	1	B
238	The number of significant figures in 0.0500 is	1	2	3	4	C
239	The number of significant figures in 0.002305	6	4	7	2	B

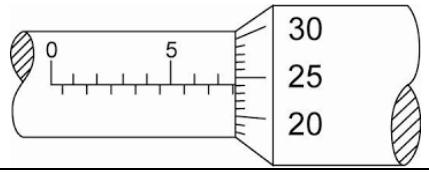
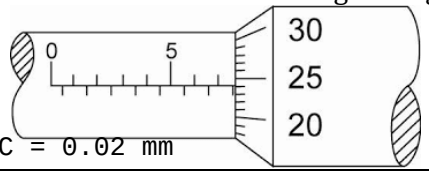
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
240	The number of significant figures in 40.0 is	~~6~~ 4	~~4~~ 3	~~7~~ 5	2	B
241	The number of significant figures in 0.0703 are	1	2	3	4	C
242	The respective number of significant figures for the numbers 23.023, 0.0003 and 2.1×10^{-3} are	4, 4, 2	5, 1, 2	5, 1, 5	5, 5, 2	B
243	The sum of measurement 15.225 cm, 7.21 cm and 3.0 cm in significant figure is _____.	25.43 cm	25.4 cm	25.435 cm	25.4350 cm	B
244	Considering four significant digits, round off the number 52.6466×10^{-3}.	52.65×10^{-3}	52.643×10^{-3}	52.64×10^{-3}	52.647×10^{-3}	A
245	The significant figures in 5.50×10^{3} are _____.	2	3	4	6	B
246	From the figure, calculate the least count of the given vernier caliper. (the main scale is in cm & vernier scale have 10 divisions) 	1 cm	0.1 cm	0.01 cm	0.001 cm	C
247	From the figure, calculate the least count of the given micrometer screw gauge. (main scale is in mm & circular scale have 50 divisions) 	0.02 mm	0.002 mm	0.2 mm	2 mm	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
248	From the given micrometer screw gauge, which figure represents **negative** zero error? 	Fig (a)	Fig (b)	Fig (c)	None of the above	C
249	From the given micrometer screw gauge, which figure represents **positive** zero error? 	Fig (a)	Fig (b)	Fig (c)	None of the above	B
250	From the given micrometer screw gauge, which figure represents **NO** zero error? 	Fig (a)	Fig (b)	Fig (c)	None of the above	A
251	What is the least count of the given vernier caliper?  Total number of division on vernier caliper = 10	0.1 cm	0.01 cm	1 mm	10 mm	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
252	From the given vernier caliper, state the readings  Total number of division on vernier caliper = 10	2.47 cm	2.57 cm	2.52 cm	5.2 cm	A
253	What is the measurement in the given figure? 	0.238 cm	0.338 cm	0.235 cm	0.335 cm	~~B~~ A
254	What is the least count of the given micrometer screw gauge? 	0.001 cm	0.002 cm	0.01 cm	0.02 cm	B
255	What is the measurement in the given figure? 	0.642 cm	0.584 cm	0.542 cm	0.684 cm	B

Do not consider the lower division on main scale

Do not consider the lower division on main scale

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
256	What is the least count of the given micrometer screw gauge, if the total division on circular scale is 50? 	0.001 cm	0.002 cm	0.01 cm	0.02 cm	B
257	What is the measurement in the given figure?  If LC = 0.02 mm	0.748 mm	7.48 mm	0.848 mm ~~8.48 cm~~	8.48 mm	B
258	Which instrument is used to measure the internal diameter of a pipe with a single measurement?	Manometer	Measuring Cylinder	Vernier Calipers	Micrometer Screw Gauge	~~D~~ C
259	The dimensions of a small book are measured as 32.2 mm, 54.2 mm, and 13.7 mm. What measuring tool could have been used to obtain these readings?	Vernier Caliper	Micrometer Screw Gauge	Measuring Tape	Meter Ruler	A
260	Which is the correct formula to measure reading using micrometer screw gauge?	TR = MSR + VSR	CR = MSR + VSR ± z	TR = MSR + CSR	CR = MSR + CSR ± z	D

Do not consider the lower division on main scale

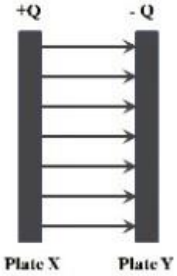
REVISED
8:17 pm, Feb 02, 2021

Unit – II (1): Electricity

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	The study of the effect associated with electric field at rest is known as _____.	electrostatics	Electro-magnetism	magnetism	magnetostatic	A
2	In an atom, electric charge is a quantitative polarity of -	electrons	protons	electrons and protons	neutrons	C
3	_____ is CGS unit of charge.	Statcoulomb	electron volt	electron unit	static unit	A
4	Statcoulomb is also known as _____.	static unit	electron volt	electron unit	electrostatic unit	D
5	In electricity, positive electric charge refers to _____.	protons	neutrons	electrons	atoms	A
6	A test or unit charge means a charge of _____.	-1 C	1 electron	+1 C	1 eV	C
7	One coulomb of charge consists of _____ electrons.	624×10^{16}	62.4×10^{16}	6.24×10^{16}	0.624×10^{16}	C
8	Which law describes that the force of attraction or repulsion between two charges is directly proportional to their strengths and inversely proportional to the square of the distance between them?	Coulomb's first law	Coulomb's second law	Coulomb's third law	Coulomb's law or law of electrostatics	D
9	The force between the two electrically charged body is called _____.	electromotive force	electrostatic force	electromagnetic force	magnetic force	B
10	The force between two electrically charged body is _____ the charge.	inversely proportional to	directly proportional to	does not affected	is universally constant to	B
11	The basic law for interaction of charged bodies at rest is called _____ law.	Charged	Gauss	Faraday's	Coulomb's	D
12	What will happen when two opposite charges get closer?	repels less	attracts less	repels more	attracts more	D
13	According to Coulomb's law, the force between two charges separated by a distance is _____	directly proportional to product of the two charges	inversely proportional to square of distance between the two charges	Both (A) and (B)	none of the above	C

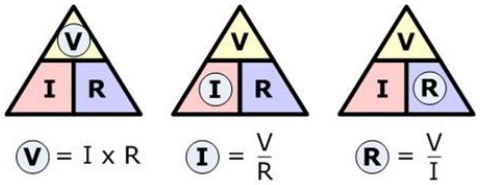
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
14	The value of k in Coulomb's electrostatic force equation ($F = kQ_1Q_2/r^2$) is oftentimes expressed as $1/4\pi\varepsilon_o$. What is ε_o?	absolute permeability	absolute permittivity	relative permeability	relative permittivity	B
15	ε_o in electrostatics is called as _____	permittivity of medium	permittivity of free space	dielectric constant	relative permittivity	B
16	In the expression $\varepsilon = \varepsilon_o k$, what does ε stands for?	permittivity of medium	permittivity of free space	dielectric constant	relative permittivity	A
17	What is another name for relative permittivity?	Dielectric strength	Electric intensity	Potential gradient	Dielectric constant	D
18	The force between two charges placed at a given distance apart from each other _____ as the relative permittivity of the medium is increased.	increases	decreases	remains unchanged	becomes infinite	B
19	The relation between absolute permittivity of air (ε_0), relative permittivity of air (k) and permittivity of medium (ε) is given by	$\varepsilon\varepsilon_o = k$	$k = \varepsilon_0/\varepsilon$	$\varepsilon = \varepsilon_o k$	$\varepsilon_o = \varepsilon k$	C
20	What is the value of the absolute permittivity of air?	8.85×10^{-10} C^2/Nm^2	8.85×10^{-9} C^2/Nm^2	8.85×10^{-12} C^2/Nm^2	8.85×10^{-11} C^2/Nm^2	C
21	The value of dielectric constant of air is _____.	approximately 1	approximately 0	approximately 2	approximately 4	A
22	Determine the force in Newton between 4μC charges separated by 0.1 meter in air.	1.44 N	14.4 N	144 N	1440 N	B
23	What will be the value of $1/4\pi\varepsilon_o$, if we substitute the value of ε_o in it?	9×10^{9} Nm^2/C^2	9×10^{9} C^2/Nm^2	9×10^{-9} Nm^2/C^2	9×10^{-9} C^2/Nm^2	~~A~~ B
24	If two similar charges 1 coulomb each are placed 1 m apart in air, then the force of repulsion is	8×10^6 N	9×10^9 N	10^6 N	5×10^6 N	B
25	What is the other name for dielectric strength?	Breakdown voltage	Electric intensity	Potential gradient	Dielectric constant	D
26	The dielectric constant of most materials lies between _____.	50 and 100	20 and 50	10 and 20	1 and 10	D
27	Most materials relative permittivity lies between _____.	0.01 – 1	1 – 10	10 – 50	50 – 100	B
28	Relative permittivity is also known as _____.	Potential gradient	Electric intensity	Dielectric constant	Dielectric ~~strength~~	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
29	What is the relative permittivity of air?	0	1	8.854×10^{-12}	9×10^{-9}	B
30	If two similar charges of 1 coulomb each are placed 1 m apart in air, then the force of repulsion is _____ N.	8.85×10^{-12}	9×10^{9}	1	0	B
31	If the relative permittivity of a material is 10, then its permittivity is	$4\pi \times 10^{-7}$ C^2/Nm^2	$4\pi \times 10^{-6}$ C^2/Nm^2	8.85×10^{-11} C^2/Nm^2	8.85×10^{-12} C^2/Nm^2	C
32	Calculate the permittivity of a material with relative permittivity of 5.	$44.25+F5310^{-11}$ C^2/Nm^2	4.42×10^{-11} C^2/Nm^2	$1/36\pi \times 10^{-9}$ C^2/Nm^2	8.85×10^{-12} C^2/Nm^2	B
33	If two equal charges are placed in air at a distance of 1 meter from each other & if they exert a force of 9×10^{9} N on each other, then each charge is said to be of _____.	1 C	9 C	8.85 C	1 A	A
34	The space outside or surrounding an electric charge where it has a force of attraction or repulsion is called _____.	Electric field	Magnetic field	Electromagnetic field	Electric flux	A
35	The concept of electric field was introduced by the Scientist _____	André-Marie Ampère	James Prescott Joule	Michael Faraday	James Watt	C
36	The imaginary lines representing the electric field are known as _____.	Electric field intensity	Electric flux	Electric flux density	Electric lines of force	D
37	The path along which a unit positive charge moves when placed in an Electric field is called _____.	Electric flux	Electric flux density	Electric lines of force	Electric field intensity	C
38	What is true in visualizing electric field lines of force from a charge body?	Field lines are continuous curve and they never intersect	The spacing between these lines increases as they get far from the charged body	The number of field lines is directly proportional to the magnitude of the electric field	All of the above	D
39	What do you call the total number of electric lines of force in an electric field?	Electric field intensity	Electric ~~lines of force~~ flux	Electric flux density	Electric flux	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
40	Charge body at rest is said to exhibit electric field, which interacts with other bodies. The study of these phenomena is known as _____.	electricity	electrostatics	electromagnetism	field interactions	B
41	The figure given below represents 	electric field	electric field intensity	magnetic field	magnetic field intensity	A
42	The electric lines of force start from _____ charge and terminate to _____ charge.	positive, negative	negative, positive	point, large	large, point	A
43	The tangent drawn to the Electric lines of force at any point indicates the direction of _____.	Electric field	Magnetic field	Electromagnetic field	Electric flux	A
44	Electric lines of force are always _____ to the surface of charged conductor.	intersect	parallel	perpendicular	bisect	C
45	Electric lines of force are _____ crowded in the region of strong electric field and _____ crowded in the region of weak electric field.	less, more	more, less	never, always	None of the above	B
46	The force acting on a unit positive charge when placed in an Electric field is called as _____.	Electric flux density	Electric lines of force	Electric field intensity	Electric flux	C
47	Electric intensity is a _____ quantity	fundamental	derived	supplementary	base	B
48	Electric field intensity is measured in	N/m	N/C	N-m	A/m	B
49	Electric field intensity is measured in	V/m	N/m	N-m	A/m	A
50	Electric field intensity at a point due to a given charge _____ if the relative permittivity of the medium decreases.	decreases	remains unchanged	increases	becomes zero	C

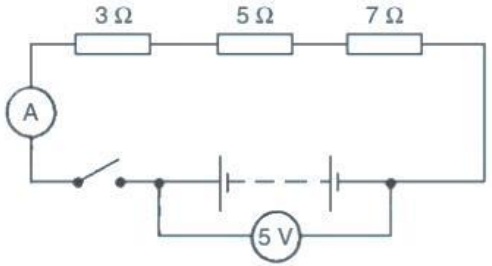
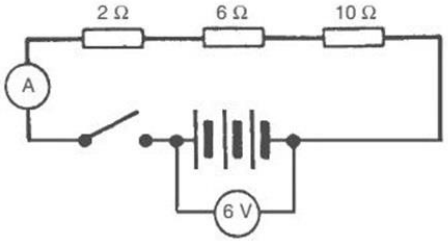
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
51	Electric field intensity at a point is numerically equal to _____ at that point.	potential gradient	potential difference	dielectric constant	the force	D
52	The number of lines per unit area in a plane perpendicular to the electric lines of force is called _____.	Electric field	Electric flux	Electric flux density	Electric lines of force	C
~~53~~	~~How does permittivity affect electric field intensity?~~	~~It causes the field intensity to increase.~~	~~It causes the field intensity to decrease.~~	~~It causes the field intensity to fluctuate up and down.~~	~~It has no effect on field intensity.~~	~~B~~
54	The measure of electric field strength per unit length is known as electric field intensity or simply electric intensity. What is its unit?	Volt/meter (V/m)	Joules/Coulomb-meter (J/Cm)	Newton/Coulomb (N/C)	All of the above	D
55	Calculate the electric field intensity 10cm from a charge Q = 5nC	450 N/C	900 N/C	4.5×10^3 N/C	9.0×10^3 N/C	C
56	_____ is defined as total number of electric lines of force starting from a unit positive charge.	Electric field	Electric flux	Electric flux density	Electric lines of force	B
57	The symbol for electric flux is _____.	φ	ρ	χ	ϱ	A
58	The total number of electric line of force passing through a surface area perpendicularly is called _____.	Electric field	Electric flux	Electric flux density	Electric lines of force	C
59	The permittivity of a material is given by one of the following formulas.	DE	E/D	D^2/E	D/E	D
60	The formula for permittivity of a material is given by _____.	DE	E/D	D^2/E	D/E	D
61	The relation between electric flux density and intensity of electric field is given as -	$E = \epsilon_0 kD$	$D = \epsilon_0 kE$	$E/D = \epsilon_0 k$	$D/E = 1/\epsilon_0 k$	B
62	Unit of Electric flux density is _____	Q/A	C/m	C/m^2	A/Q	C
63	The electric intensity at a point 50 cm from a charge of 3.2 μC in a medium of dielectric constant 2 is equal to _____.	57.6×10^3 N/C	576 N/C	5760 N/C	5.76×10^3 N/C	A
64	The rate of flow of charge is called electric _____.	current	voltage	power	resistance	A
65	1 A = _____.	1J/C	1C/s	1J/s	1N/s	B

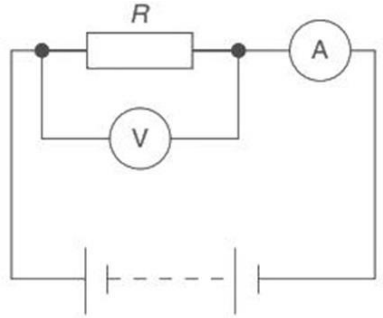
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
66	When one coulomb of electric charge continuously passes a given point every second, the electric current is said to	1 μA	1 mA	1 A	10 A	C
67	One ampere is equal to _____ electrons per second?	1×10^{18}	1×10^{19}	6.25×10^{18}	6.25×10^{19}	C
68	The work done in bringing a unit charge from infinity to a given point in electric field is called _____.	electric charge	electric current	electric potential	electric power	C
69	If 1 joule of work is done in bringing a charge of 1 coulomb from infinity to any point against the electric field, then the potential is said to be _____.	1 coulomb	1 volt	1 ampere	1 watt	B
70	The amount of work done in bringing a unit positive charge from one point to another point inside electric field is called _____.	charge	potential difference	potential gradient	absolute potential	B
71	1 volt = _____.	1J/C	1C/J	1W	1N/C	A
72	What will be the potential of a body, if work done to move a charge of 25 C is 1600 J.	15.6 mV	40 kV	64 V	6.4 V	C
73	Calculate the potential due to charge of 0.05μC at a point 0.4m in a dielectric of 2.5.	125 V	50 V	2 V	450 V	D
74	The potential at a point due to a charge is 15 V. If the distance is increased three times, the potential at the point will be	5 V	18 V	45 V	15 V	A
75	The electric potential at a point in air due to a charge is 21 V. If the air is replaced by a medium of relative permittivity of 3, then electric potential at that point will be	63 V	21 V	7 V	42 V	C
76	A 2nC point charge will produce what potential at 2 m away?	4.0 V	6.0 V	7.5 V	9.0 V	D
77	A charged body in free space produces 10-V potential at a distance 25 cm away. What will be the potential at 50 cm away?	5.0 V	7.5 V	10.0 V	15.0 V	A

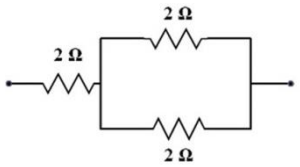
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
78	The following figure represents – 	Coulomb's law	Ohm's law	Newton's law	None of the above	B
79	The equation of Ohm's law is _____	V = IR	I = VR	R = I/V	1/R = V/I	A
80	According to Ohm's law, the current flowing through the conductor increases with increase in _____.	applied voltage	resistance of the conductor	temperature	all of the above	A
81	Ohm's law is valid only when the temperature of conductor remains _____	zero	constant	infinity	variable	B
82	_____ is defined as the property of a conductor to resist the flow of charges across it.	Specific resistance	Resistivity	Resistance	Conductance	C
83	The opposition offered to flow of current by the conductor is called _____.	Resistance	Conductance	Specific resistance	Resistivity	A
84	Unit of electric resistance is _____.	ampere	volt	ohm	farad	C
85	1Ω = _____	1 A/ V	1 V/ A	1 VA	None of the above	B
86	At constant temperature, the resistance of a material is _____ length of the material.	directly proportional to	independent of	inversely proportional to	equal to	A
87	At constant temperature, the resistance of a material is _____ area of cross-section of the material.	directly proportional to	independent of	inversely proportional to	equal to	C
88	If the length and area of cross-section of a wire are doubled, then its resistance	becomes four times	becomes sixteen times	remains the same	becomes two times	C
89	A length of wire has a resistance of 10 ohms. What is the resistance of a wire of the same material three times as long and twice the cross-sectional area?	30 ohms	20 ohms	15 ohms	7 ohms	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
90	The bigger the diameter of a wire,	more current can pass	less current can pass	more heat is generated when current flow	the higher is the electrical resistance	A
91	The greater the diameter of a wire, the _____ is the resistance.	greater	lesser	harder	bigger	B
92	The longer the wire the _____ is the resistance	higher	lesser	harder	smaller	A
93	If a conductor's cross-sectional area is doubled and its length is halved, the value of its resistance will	double	quadruple	decrease by a factor of two	decrease by a factor of four	D
94	What is the SI unit of specific resistance or resistivity?	Ω/m	Ω/cm	Ωm	Ωcm	C
95	The resistivity of a conductor _____ with an increase in length.	increases	decreases	remains the same	becomes zero	B
96	If the resistance of a material 2 m long and 2 m^2 in area of cross-section is 1.6×10^{-8} Ω, then its resistivity is _____.	3.2×10^{-8} Ω-m	1.6×10^{-8} Ω-m	0.64×10^{-8} Ω-m	0.16×10^{-8} Ω-m	B
97	A 100m long wire with a cross-sectional area $A=10^{-3}$ m^2 has a resistance of 10Ω. Determine the resistivity of the wire.	10^{-2} Ω-m	10^{-3} Ω-m	10^{-4} Ω-m	10^{-5} Ω-m	C
98	The specific resistance of wire 5 m in length, having 1 mm^2 cross-sectional area and resistance 500 Ω is _____.	1 μΩ-m	10 μΩ-m	0.1 μΩ-m	0.01 μΩ-m	C
99	The conductivity of a conductor _____, with increase in temperature.	decreases	increases	remain same	none of the above	B
100	Resistance of material having unit length and unit cross-sectional area is called _____.	resistance	conductance	resistivity	conductivity	C
101	The measure of ease with which the current will flow through conductor is called _____.	resistance	conductance	resistivity	conductivity	B
102	_____ is the reciprocal of resistance.	Conductance	Conductivity	Resistivity	Specific resistance	A
103	SI unit of conductance is _____.	Siemens	volt	ohm	farad	A
104	1mho = _____	1/Ω-m	Ω-m	S	Ω	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
105	The reciprocal of resistivity is called _____.	conductance	conductivity	specific resistance	resistance	B
106	SI unit of conductivity is _____.	1/Ω-m	m/S	Ω-m	S	~~B~~ A
107	Calculate the conductance of a wire if 400 mA of current flows through the wire having p.d of 10 V between its end.	4 mho	0.4 mho	0.04 mho	40 mho	C
108	The resistance of a copper wire of 5 m long is 0.5Ω. If the diameter of wire is 0.045 cm, determine its specific resistance.	3.2×10^{-9} Ω-m	1.6×10^{-9} Ω-m	64×10^{-9} Ω-m	16×10^{-9} Ω-m	D
109	The resistance of a material is _____ its area of cross-section.	directly proportional	independent of	inversely proportional to	equal to	C
110	If the resistance of a material 2 m long and 2 m^2 in area of cross-section is 1.6×10^{-8} Ω, then its resistivity is	3.2×10^{-8} Ω-m	1.6×10^{-8} Ω-m	0.64×10^{-8} Ω-m	0.16×10^{-8} Ω-m	~~C~~ B
111	Current through each resistor when they are connected in series is _____.	different	same	increasing	decreasing	B
112	Three resistances 20 Ω, 30 Ω and 60 Ω are connected in parallel, their combined resistance is given by	110 Ω	50 Ω	20 Ω	10 Ω	D
113	Combined resistance of 5 Ω and 10 Ω is equal to	10 Ω	16 Ω	15 Ω	20 Ω	C
114	Two 10 Ω resistors are connected in parallel, their equivalent resistance is	5 Ω	0.2 Ω	15 Ω	20 Ω	A
115	Ammeter should always have a	high resistance	low resistance	low voltage	high voltage	B
116	In parallel combination voltage passing through each resistor is	Same	different	low voltage	high voltage	A
117	Resistors are connected end to end in	series combination	parallel combination	circular combination	random combination	A
~~118~~	~~Resistors can be connected in~~	~~3 ways~~	~~4 ways~~	~~5 ways~~	~~2 ways~~	~~D~~
119	In series combination current passing through each resistor is	different	same	zero	high	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
120	Equivalent resistance in a parallel resistance circuit when resistances are 2 Ω, 3 Ω and 6 Ω, and V = 6 V is	2 Ω	3 Ω	1 Ω	4 Ω	C
121	If two 4 ohm resistors are connected in series the effective resistance of the circuit is:	8 Ω	4 Ω	2 Ω	1 Ω	A
122	If two 4 ohm resistors are connected in parallel the effective resistance of the circuit is:	8 Ω	4 Ω	2 Ω	1 Ω	C
123	With the switch in figure closed, the ammeter reading will indicate: 	1.67 A	75 A	0.33 A	0.125 A	C
124	The effect of connecting an additional parallel load to an electrical supply source is to increase the:	resistance of the load	voltage of the source	current taken from the source	p.d. across the load	C
125	The equivalent resistance when a resistor of 1/3 Ω is connected in parallel with a resistor of 1/4 Ω is:	1/7Ω	7Ω	1/12Ω	3/4Ω	A
126	A 6 Ω resistor is connected in parallel with the three resistors of Figure. With the switch closed the ammeter reading will indicate: 	3/4 A	4 A	1/4 A	4/3 A	D

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
127	A 10 Ω resistor is connected in parallel with a 15 Ω resistor and the combination in series with a 12 Ω resistor. The equivalent resistance of the circuit is:	37 Ω	18 Ω	27 Ω	4 Ω	B
128	When three 3 Ω resistors are connected in parallel, the total resistance is:	3 Ω	9 Ω	1 Ω	0.333 Ω	C
129	The total resistance of two resistors $R_1$and $R_2$when connected in parallel is given by:	$R_1 + R_2$	$1/R_1 + 1/R_2$	$(R_1 + R_2)/ R_1R_2$	$R_1R_2/ (R_1+R_2)$	D
130	If in the circuit shown in Figure, the reading on the voltmeter is 5 V and the reading on the ammeter is 25 mA, the resistance of resistor R is: 	0.005 Ω	3 Ω	125 Ω	200 Ω	D
131	The total resistance of two resistors $R_1$and R_2 when connected in series is given by:	$R_1 + R_2$	$1/R_1 + 1/R_2$	$(R_1 + R_2)/ R_1R_2$	$R_1R_2/ (R_1+R_2)$	A
132	When number of resistances are connected in _____ combination, its equivalent resistance increases.	series	parallel	parallel and series	none of the above	A
133	When number of resistances are connected series, then the effective resistance of its combination _____.	increases	decreases	remain same	all of the above	A
134	When number of resistances are connected in _____ combination, its equivalent resistance decreases.	series	parallel	parallel and series	none of the above	B
135	When number of resistances are connected parallel, then the effective resistance of its combination _____.	increases	decreases	remain same	all of the above	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
136	The effective resistance for the given figure is – 	4 Ω	3 Ω	2 Ω	1 Ω	B
137	When two resistances are connected in series, their equivalent resistance is 100 Ω and when connected in parallel to each other its value is 24 Ω. The value of two resistances are -	50 Ω, 50 Ω	12 Ω, 12 Ω	40 Ω, 60 Ω	24 Ω, 76 Ω	C
138	When two resistances of 100 Ω and 200 Ω are connected in series and then their combination is connected in parallel with 300 Ω resistances. The equivalent resistance of the combination is _____ Ω	600 Ω	6.65 Ω	1.67 Ω	150 Ω	D
139	A galvanometer is used to	measure motential difference	detect direction of current	measure amount of current flowing	measure electric power of the circuit	B
140	An electric fuse is based on	the heating effect of the current	the chemical effect of the current	the magnetic effect of the current	none of the above	A
141	Heating effect of electric current is used in _____.	electric kettle	fan	freezer	TV	A
142	Heating effect produced by current is due to the _____.	collision of electrons	movement of electrons	resistance in electrons	lose of energy	A
143	Heat produced by current in wire during 't' time is determined by _____.	$H = I^2R$	$H = Irt$	$H = I^2Rt$	$H = I^2t$	C
144	Which one of the following is based on the heating effect of current?	Geyser	Hair dryer	Both (A) and (B)	None of the above	C
~~145~~	~~Find the odd one out-~~	~~electric toaster~~	~~electric fan~~	~~electric iron~~	~~room heater~~	~~B~~
146	An electric fuse works on the principle of -	magnetic effect of electric current	chemical effect of heating current	heating effect of electric current	none of the above	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
147	An electric fused is based on -	conversion of electrical energy to heat energy	conversion of heat energy to electrical energy	conversion of electrical energy to magnetic energy	conversion of magnetic energy to electrical energy	A
148	According to Joule's law, heat generated in the conductor is directly proportional to _____	current flowing through conductor	resistance of the conductor	time for which the current flows	all of the above	D
149	According to Joule's law, electrical energy is converted to _____	mechanical energy	chemical energy	light energy	heat energy	D
150	When current is passed through a coil, it gets heated up. This is due to _____.	mechanical effect of electric current	chemical effect of electric current	heating effect of electric current	none of the above	C
151	Two charged bodies having equal potential are connected through a conducting wire, in this case	current will flow	current will not flow	cannot say	current flows only if resistor connected	B
152	The Potential Difference between two terminals can be measured by _____	an ammeter	a voltmeter	an ohm-meter	a rheostat	B
153	The net charge flowing through a cross section of a conductor in unit time is known as	potential	ampere	volt	resistance	B
154	Which of the following correctly represents the relation among Charge (Q), Potential difference (V) and Work done (W)	V = W × Q	W = V / Q	V = Q / W	V = W / Q	D
155	The voltmeter is always connected in _____ across the points between which the potential difference is to be measured.	parallel	series	either series or parallel	none of the above	A
156	According to Ohm's law,	The resistance increases with the increases in current.	The resistance increases with the increases in voltage.	The current increases with the increases in voltage.	The resistance and current both increases with the increases in voltage.	The current increases with the increases in voltage.

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
157	A voltmeter is used to measure	potential difference	electric current	electric power	resistance	A
158	On which of the following no “plus” or “minus” sign is marked	a battery	an ammeter	a voltmeter	a resistor	D
159	Product of voltage and current is known as _____.	work done	power	velocity	acceleration	B
160	Ohmic devices are devices that consequently _____.	satisfy Ohm's law	violate Ohm's law	doesn't obey Ohm's law	obey Ohm's law	D
161	Power can be represented in variety of ways as _____.	$V \times I$	I^2R	V^2/R	all of the above	D
162	In household connection electric bulbs are connected in _____	series	parallel	series and parallel	none of the above	B
~~163~~	~~A device which uses electricity is _____~~	~~key~~	~~bulb~~	~~cell~~	~~all of the above~~	~~B~~
~~164~~	~~When cells are connected in series, we get _____~~	~~Dynamo~~	~~Generator~~	~~Battery~~	~~None of the above~~	~~C~~
165	Electrical appliances connected so that they form a single pathway for charges to flow are connected in a(n) _____ circuit.	series	parallel	open	closed	A
166	A fuse in an electric circuit acts as a	current multiplier	voltage multiplier	power multiplier	safety device	D
167	Coulomb's force between 2 point charges 10μC and 5μC placed at a distance of 150cm is	0.2 N	0.5 N	2 N	10 N	A
168	If 5 J of work is required to shift 10 C charge from one place to another then potential difference is	0.5 V	2 V	5 V	10 V	A
169	Value of k in coulomb's law depends upon	magnitude of charges	distance between charges	both (A) and (B)	medium between two charges	D
170	Coulomb is equal to charge of	8.25×10^{18}	6.25×10^{18}	7.25×10^{18}	5.25×10^{18}	B

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Unit – II (2): Magnetism

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	The force of attraction or repulsion between two magnetic poles is inversely proportional to the square of the distance between them. This is known as _____.	Newton's first law	Faraday's first law of electromagnetic induction	Coulomb's first law	Coulomb's second law	D
2	The phenomenon by which a magnetic substance becomes a magnet when it is place near a magnet	Magnetic effect	Magnetic phenomenon	Magnetic induction	Electromagnetic induction	C
3	The number of lines per unit area through any substance in a plane at right angles to the lines of force is called	magnetic flux	magnetic flux lines	magnetic flux density	magnetic flux intensity	C
4	The force between two magnetic poles is _____ their pole strengths.	directly proportional to	the sum of	inversely proportional to	the product of	D
5	At/m is a unit of	mmf	magnetic force	reluctance	magnetic flux density	B
6	What do you call a pole that when place in air with a similar and equal pole will cause a force of repulsion of $(1/4\pi)\mu o$ Newton's?	South pole	Unit pole	Convergence pole	Universal pole	B
7	The ratio of material permeability to the permeability of air or vacuum.	relative conductivity	relative permeability	inverse permeability	relative permittivity	B
8	The number of lines per unit area in a plane perpendicular to the magnetic lines of force.	magnetic field	magnetic flux	magnetic flux density	magnetic lines of force	C
9	According to Coulomb's 2nd law, the force between two magnetic poles separated by a distance is _____	directly proportional to product of the magnitude of two pole	inversely proportional to square of distance between the two poles	Both (A) and (B)	None of the above	C
10	What is the unit of magnetic flux in SI system?	weber	Maxwell	tesla	gauss	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
11	A magnet is an object that exhibits magnetic properties such as	exerting an attractive force on iron or other magnetic materials	exerting both attractive and repulsive forces on other magnets	deflecting the path of a moving charged particle	all of the above	D
12	A quantity corresponding to the amount of magnetic flux originating from a given magnetic pole is called _____.	South pole	magnetic pole	magnetic dipole	None of the above	B
13	_____ are the regions on a magnet where the forces are the strongest	Magnetic Centre	Magnetic pole	Both (A) and (B)	None of the above	B
14	Magnetic poles are of two types	North pole	South pole	Both (A) and (B)	None of the above	C
15	In the expression $\mu=\mu_0 \times \mu_r$, μ is called	permeability of medium	permeability of free space	permeability of vacuum	all of the above	A
16	In the expression $\mu=\mu_0 \times \mu_r$, μ_0 is called	permeability of vacuum	permeability of free space	Both (A) and (B)	None of the above	C
17	In the expression $\mu=\mu_0 \times \mu_r$, μ_r is called	permeability of medium	permeability of free space	relative permeability	None of the above	C
18	According to Coulomb's law of magnetism, force (F) of attraction or repulsion between two magnetic poles is directly proportional to -	$m_1 \times m_2$	d^2	$1/4\pi$	None of the above	A
19	According to Coulomb's law of magnetism, force (F) of attraction or repulsion between two magnetic poles is inversely proportional to -	$m_1 \times m_2$	d^2	μ	None of the above	B
20	_____ is defined as the space around a unit north pole where force of attraction or repulsion can be observed or felt.	Magnetic Field	Magnetic Flux	Both (A) and (B)	None of the above	A
21	_____ is defined as the path along which a unit north pole moves when placed in an magnetic field.	Magnetic Flux	Magnetic lines of force	Magnetic Field	Magnetic Field Intensity	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
22	Magnetic lines of force starts from _____ pole and ends to _____ pole.	south, north	east, west	west, east	north, south	D
23	Magnetic lines of force that are close together indicate a _____ magnetic field.	weak	strong	normal	None of the above	B
24	Magnetic lines of force that are farther apart indicate a _____ magnetic field.	weak	strong	normal	None of the above	A
25	_____ is defined as force acting on a unit north pole when placed in a magnetic field.	Magnetic flux	Magnetic field intensity	Both (A) and (B)	None of the above	B
26	_____ is defined as total number of magnetic lines of force starting from a unit north pole.	Magnetic flux	Magnetic field intensity	Both (A) and (B)	None of the above	A
27	Magnetic flux is denoted by symbol	ϕ	H	B	M	A
28	Magnetic flux density is denoted by symbol	ϕ	H	B	M	C
29	Magnetic field strength is denoted by symbol	ϕ	H	B	M	B
30	Magnetic field intensity is denoted by symbol	ϕ	H	B	M	B
31	Unit of magnetic field strength (H) is	A/m	N/Wb	Both (A) and (B)	None of the above	C
32	Unit of magnetic flux (ϕ) is	Wb	T	A/m	N/Wb	A
33	Unit of magnetic flux density (B) is	Wb	T	A/m	N/Wb	B
34	Which is the correct unit of magnetic flux density (B)?	T	N/Am	Wb/m^2	all of the above	D
35	Which is the correct unit of magnetic flux density (B)?	kg/As^2	N/Am	Wb/m^2	all of the above	D

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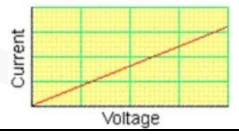
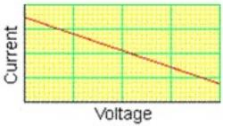
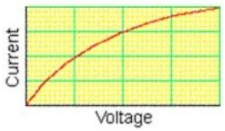
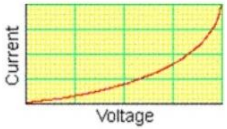
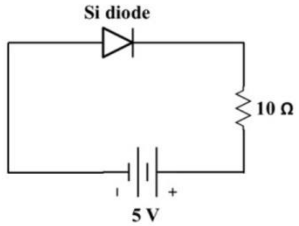
Unit – II (3): Semiconductors

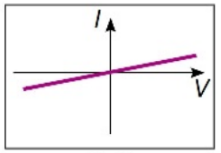
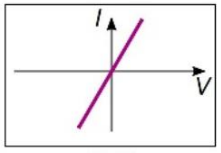
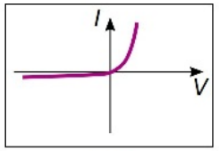
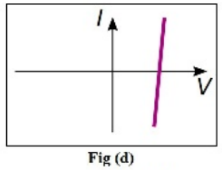
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	Electron is a Greek word for _____	amber	fire	stone	heat	A
2	Ion is _____	an atom with unbalanced charges	free electron	proton	nucleus without protons	A
3	Which material has more free electrons?	Conductors	Insulators	Mica	Dielectric	A
4	Which of the following cannot move?	Holes	Free Electrons	Ions	Majority carriers	C
5	_____ has a unit of electron volt (eV).	Charge	Potential difference	Energy	Current	C
6	The band which consists different closely spaced energy levels of all electrons in a particular orbit are called _____	Energy band	Valence band	Conduction band	None of the above	A
7	The energy band which occupies valence electrons is called _____	Energy band	Valence band	Conduction band	None of the above	B
8	The energy band which occupies free electrons is called _____	Energy band	Valence band	Conduction band	None of the above	C
9	The separation between conduction band and valence band in energy band diagram is called _____	Forbidden energy band	Valence band	Conduction band	None of the above	A
10	When electron moves to conduction band it creates _____ in valence band.	holes	electrons	ions	atoms	A
11	There is no energy band gap in _____	conductors	semiconductors	insulators	All of the above	A
12	_____ have low resistivity and high conductivity.	conductors	semiconductors	insulators	All of the above	A
13	In conductors, the conduction and valance bands _____	are separated by 1.1 eV	are separated by 5.5 eV	overlaps	None of the above	C
14	Which of the following has the least number of valence electrons?	Conductor	Semiconductor	Insulator	Semi-insulator	C
15	An insulating element or material has capability of _____	conducting large current	storing voltage	storing high current	preventing short circuit between two conducting wires	D

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
16	The conduction band _____	is always above the forbidden energy level	is the region of free electrons	concentrates holes for the flow of current	is a range of energies corresponding to the energies of the free electrons	D
17	The electrons in the last orbit of an atom are called _____ electrons.	free	valence	bound	thermionic	B
18	Electrons at the conduction band are called _____	free electrons	valence electrons	deep state electrons	shallow state electrons	A
19	In materials, which is the region that separates the valence and conduction bands?	barrier potential	forbidden level	insulation band	energy gap or forbidden gap	D
20	In _____, a large energy band gap exists and conduction band is empty.	conductors	semiconductors	insulators	None of the above	C
21	There is no _____ are available for conduction in an insulators.	ions	holes	electrons	charges	C
22	_____ have high resistivity and low conductivity.	conductors	semiconductors	insulators	All of the above	C
23	In insulators, energy band gap is of the order of	0 eV	> 1.1 eV	> 5.5 eV	6 eV	C
24	In semiconductors, energy band gap is of the order of	0 eV	> 1.1 eV	> 5.5 eV	6 eV	B
25	Ge and Si are the examples of _____	conductors	semiconductors	insulators	metalloids	B
26	The forbidden energy gap for Ge ≈	0.5 eV	1.1 eV	0.72 eV	1.5 eV	C
27	The forbidden energy gap for Si ≈	0.5 eV	1.1 eV	0.72 eV	1.5 eV	B
28	A semiconductor (Si & Ge) in pure form is called _____ semiconductor	intrinsic	extrinsic	doped	None of the above	A
29	In intrinsic semiconductor, the conduction takes place through electrons and _____	holes	ions	both ions and holes	None of the above	A
30	If the number of valence electrons of an atom is less than 4, then the substance is probably _____	a metal	an insulator	a metalloid	a semiconductor	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
31	The energy gap is much more in silicon than in germanium because _____	it has less number of electrons	it has high atomic mass number	its crystal has much stronger bonds called ionic bonds	its valence electrons are more tightly bound to their parent nuclei	D
32	A doped semiconductor is also known as _____	Intrinsic semiconductor	Extrinsic semiconductor	Diffused semiconductor	None of the above	B
33	A trivalent impurity has _____ valence electrons.	3	4	5	6	A
34	Trivalent atoms have how many valence electrons?	1	3	4	5	B
35	A reverse biased pn junction has resistance of the order of _____	Ω	kΩ	MΩ	GΩ	C
36	Acceptor-type impurities _____	can be added to silicon but not to germanium	create excess electrons	must have three valence electrons	must have five valence electrons	C
37	When a pure semiconductor is heated, its resistance _____	increases	decreases	remains same	first increases and then decreases	B
38	Intrinsic semiconductor at room temperature will have _____ available for conduction.	electrons	holes	both electrons and holes	None of the above	C
39	At absolute temperature, an intrinsic semiconductor has _____	a few free electrons	many holes	many free electrons	no holes or free electrons	D
40	Each valence electron in an intrinsic semiconductor establishes a _____	covalent band	free electron	hole	recombination of holes and electrons	A
41	Si atom with its four valence electrons shares an electron with each of its _____ neighbouring atom.	2	4	6	8	B
42	The term bias in electronics usually means -	the value of ac voltage in the signal.	the condition of current through a pn junction.	the value of dc voltages for the device to operate properly.	the status of the diode.	C
43	Which of the following cannot exist outside a semiconductor?	Electrons	Holes	Both electrons and holes	None of the above	B
44	~~What can a semiconductor sense?~~	~~Pressure~~	~~Temperature~~	~~Magnetism~~	~~All of the above~~	~~D~~

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
45	By adding _____ type of impurity, the semiconductor material becomes p-type.	monovalent	divalent	trivalent	pentavalent	C
46	What type of material is obtained when intrinsic semiconductor is doped with pentavalent impurity?	N-type semiconductor	Extrinsic semiconductor	P-type semiconductor	Insulator	A
47	The process of adding impurities to pure semiconductors are called _____	dopants	agents	ageing	doping	D
48	When a small amount of pentavalent impurity (such as As or Sb or P) is added to a pure semiconductor (Si or Ge), it is called as _____ semiconductor.	n-type	p-type	pn-type	np-type	A
49	Arsenic is _____ atom.	trivalent	quadravalent	pentavalent	None of the above	C
50	In _____ semiconductors, conductivity is due to negatively charged electrons.	n-type	p-type	pn-type	np-type	A
51	When a small amount of trivalent impurity (such as Ga or B or Al) is added to a pure semiconductor (Si or Ge), it is called as _____ semiconductor.	n-type	p-type	pn-type	np-type	B
52	Gallium is _____ atom.	trivalent	quadravalent	pentavalent	None of the above	A
53	In _____ semiconductors, conductivity is due to positively charged electrons.	n-type	p-type	pn-type	np-type	B
54	The process of joining p-type and n-type material is known as _____	doping	diffusion	fusion	ageing	B
55	In P-N Junction Diode, the N-side consists of high concentration of _____	electrons	holes	ions	charges	A
56	In P-N Junction Diode, the P-side consists high concentration of _____	electrons	holes	ions	charges	B
57	The process of combining of holes with electrons across the junction is known as _____	doping	diffusion	fusion	ageing	B
58	The immobile charges left behind on N-side and P-side of PN junction diode are called _____ charges	bound	free	mobile	None of the above	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
59	A region which is depleted of free charge carriers (i.e., electrons and holes) and has only immobile charges is called _____ region	conduction	valence	depletion	filled	C
60	The immobile positive and negative charges on the opposite sides of the P-N junction develops an electric field across the junction, which is called as _____ potential	junction	barrier	both (A) and (B)	None of the above	C
61	What factor(s) do(es) the barrier potential of a pn junction depend on?	Type of semi-conductive material	The amount of doping	The temperature	All of the above	D
62	A forward biased pn junction diode conducts, if the applied voltage is _____ potential barrier.	smaller than	equal to	greater than	independent of	C
63	As the forward current through a silicon diode increases, the internal resistance _____	increases.	decreases.	remains the same.	none of the above	B
64	For a forward-biased diode, the barrier potential ____ as temperature increases.	decreases	remains constant	increases	none of the above	A
65	The barrier voltage at a pn junction for germanium is about _____	~~2V~~ 0.2V	~~3V~~ 0.3V	~~5V~~ 0.5V	~~7V~~ 0.7V	B
66	The barrier voltage at a pn junction for silicon is about _____	2V	3V	5V	7V	D
67	Which graph displays the I–V graph for an ohmic conductor?					A
68	In the circuit diagram shown, the current flowing through the resistor is 	0A	0.05A	20A	0.7A	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
69	The leakage current in a pn junction is of the order of _____	A	mA	nA	μA	D
70	The flow of valence electrons to the left means that holes are flowing to the _____ of PN junction diode.	left	right	either way	None of the above	B
71	There is a small amount of current across the barrier of a reverse-biased diode. This current is called _____	forward-bias current.	reverse breakdown current.	conventional current.	reverse leakage current.	~~B~~ D
72	Which of the following is an application of pn junction diode?	It is used as switches in digital logic designs.	It is used in clamping circuits in TV receivers as well as voltage multipliers	It is used as rectifiers in DC power supply manufacturing.	All of the above	D
73	Which of the following represents the forward characteristics of p-n junction diode?	 Fig (a)	 Fig (b)	 Fig (c)	 Fig (d)	C
74	When p-n junction diode is in forward bias, the width of depletion region and height of barrier potential _____.	decreases	increases	remain same	is zero	A
75	When p-n junction diode is in reverse bias, the width of depletion region and height of barrier potential _____.	decreases	increases	remain same	is zero	B

Unit – III (1): Heat

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	The capacity to do work is called as _____	Heat	Energy	Work	Power	B
2	_____ is neither created nor destroyed it can only change one form to another.	Work	Heat	Energy	Mass of body	C
3	_____ is form of energy that is transferred from the body at higher temperature to the body at lower temperature.	Heat	Energy	Work	Power	A
4	_____ is a measure of degree of hotness or coldness of the body.	Heat	Energy	Temperature	Radiation	C
5	_____ has the ability to do work.	Heat	Energy	Work	Power	A
6	_____ can only be used to measure the degree of heat.	Heat	Energy	Temperature	Radiation	C
7	SI unit of heat is	J	J/s	Cal	J/cal	A
8	SI unit of temperature is	°C	°K	°A	°F	B
9	The amount of heat required to raise the temperature of 1 gram of water by 1°C is called _____	1 calorie	1 kilocalorie	1 joule	1 kJ	A
10	1 calorie = _____	1.2 joule	3.2 joule	4.2 joule	None of the above	C
11	The amount of heat required to raise the temperature of 1 kg of water by 1°C is called _____	1 calorie	1 kilocalorie	1 joule	1 kJ	B
12	How we measure energy value of food?	J	J/s	cal	J/cal	C
13	The temperature at which the pressure and volume of gas (theoretically) becomes zero is called _____ temperature	Absolute zero	Celsius zero	Fahrenheit zero	zero	A
14	-273 °C = _____	0 °K	0 °F	Both (A) and (B)	None of the above	A
15	_____ scale is a temperature scale where 0°C is the freezing point of water and 100°C is the boiling point of water.	Celsius	Fahrenheit	Kelvin	Absolute	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
16	_____ scale, the freezing point of liquid water is 32°F, and the boiling point of water is 212°F.	Celsius	Fahrenheit	Kelvin	Absolute	B
17	Scale which is divided into equal 100 divisions between the freezing point and boiling point and each division is called_____	degree Celsius	degree Fahrenheit	degree Kelvin	degree Absolute	A
18	Scale which is divided into equal 180 parts between the freezing point and boiling point and each division is called_____	degree Celsius	degree Fahrenheit	degree Kelvin	degree Absolute	B
19	The temperature at which liquid changes into vapour is called as _____	melting point	boiling point	expansion point	freezing point	B
20	Kelvin scale is also called as _____	Celsius scale	Absolute scale	Fahrenheit scale	All of the above	B
21	Which is the correct correlation between °C scale and °F scale?	°C = (°F - 32) × 5/9	°F = (9/5 × °C) + 32	Both (A) and (B)	None of the above	C
22	If boiling point of water is 100 °C, calculate the temperature of water in Fahrenheit.	127°F	212°F	273°F	373°F	B
23	Normal human body's temperature is 98.6 °F. In Celsius scale, it is	27°C	30°C	32°C	37°C	A
24	Temperature of water in a breaker is 40 °C. Its value in Fahrenheit scale is	104 °F	110 °F	116 °F	130 °F	A
25	If we convert 110 °F into Celsius scale of temperature, we get	43.3 °C	0 °C	150 °C	60.5 °C	A
26	Which of the following are the processes of transfer of heat?	Conduction	Convection	Radiation	All of the above	D
27	A cold steel spoon is dipped in a cup of hot milk. It transfers heat to its other end by the process of_____	Conduction	Convection	Radiation	All of the above	A
28	The process of transfer of heat in solids is called as _____	Absorption	conduction	radiation	convection	B
29	_____ is a process of transfer of heat from a part of body at higher temperature to a part of body at lower temperature without bodily (actual) movement of particles.	Conduction	Convection	Radiation	Transmission	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
30	Why conduction is only possible in solids _____	particles of solids are closely packed.	heat is transferred from the hotter end to the colder end of an object.	heat is transferred from the colder end to the hotter end of an object.	Both (A) and (B)	C
31	At what factor heat absorbed on radiation by body depends on?	distance between the bodies	source of heat	its colour	All of the above	D
32	Steady state is the state of temperature of conductor where _____	temperature of conductor keeps changing	heat absorbed by the conductor is greater than heat given out	heat absorbed by the conductor is less than heat given out	heat absorbed by the conductor is equal to heat given out	D
33	The amount of heat flowing through a rod of unit area, in one second for unit temperature gradient at steady state is called _____	heat coefficient	coefficient of electrical conductivity	coefficient of thermal conductivity	temperature coefficient	C
34	The coefficient of thermal conductivity (K) of material is the amount of heat conducted in one second in steady state of temperature through unit cross-sectional area of an element of material of_____	unit temperature gradient.	unit thickness with unit temperature difference between its opposite faces.	Both (A) and (B)	None of the above	C
35	What does 'A' represent in the equation relating the heat transfer rate? $Q = \frac{K \times A \times (\theta_1 - \theta_2) \times t}{d}$	ampere	area	angle	thickness	B
36	What does (θ1 - θ2)/ d stands for?	angle per distance	temperature per density	temperature gradient	angular gradient	C
37	Change in temperature per unit length of rod is called _____	velocity gradient	temperature gradient	linear gradient	temperature rate	B
38	The equation of thermal conductivity is given as _____	$Q = \frac{K \times A \times (\theta_1 - \theta_2) \times t}{d}$	$Q = \frac{K \times d \times (\theta_1 - \theta_2) \times t}{A}$	$Q = \frac{K \times A \times (\theta_1 - \theta_2) \times d}{t}$	$Q = K \times A \times (\theta_1 - \theta_2) \times t$	A
39	MKS unit for K is	cal/m°C-sec	kcal/m°C-sec	W/m°K	All of the above	B
40	CGS unit for K is	cal/m°C-sec	kcal/m°C-sec	W/m°K	All of the above	A
41	SI unit for K is	cal/m°C-sec	kcal/m°C-sec	W/m°K	All of the above	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
42	Which one among the following statements about thermal conductivity is correct?	Steel >Wood >Water	Steel >Water >Wood	Wood > Steel > Water	Water >Wood >Steel	B
43	The SI unit of rate of heat transfer is _____.	watt	J/s	Both (A) and (B)	None of the above	C
44	If the thickness of the material through which heat is transferred is increased by a factor of 2, then the rate of heat transfer is_____	increased by a factor of 4	decreased by a factor of 4	increased by a factor of 2	decreased by a factor of 2	D
45	Which of the following are the examples of insulators?	Wood	Silicon	Copper	Aluminum	A
46	A metal rod of length 0.20 m has one of its ends at 20 °C while the other is at 50 °C. Find the temperature gradient?	100 °C/m	150 °C/m.	20 °C/m	50 °C/m	B
47	A window pane is 100 cm X 30 cm. Its thickness is 3 mm. If the difference between inside & outside temperature is 50K, calculate the amount of heat conducted in 1 hour. K for glass = 1 W/ m°K.	10×10^6 J	15×10^6 J	18×10^6 J	20×10^6 J	C
48	A cooking pot is coated black at the outer surface because -	black substances absorb more heat	black substances reflect more heat	black surfaces are easier to clean	the material of the pot would not be damaged	A
49	Some cooking pots have copper coating on the bottom, it because copper is a _____	good conductor of heat	bad conductor of heat	good conductor of electricity	bad conductor of electricity	A
50	If a frying pan is placed onto a stovetop, the pan becomes very hot due to the _____ of heat from the burner to the pan.	conduction	convection	radiation	transmission	A
51	When it's too hot, taking a cold shower transfer the heat of body to the cold water, cooling the body down. In this example which process of heat transfer takes place?	conduction	convection	radiation	transmission	A
52	Ironing of clothes is an example of -	conduction	convection	radiation	transmission	A

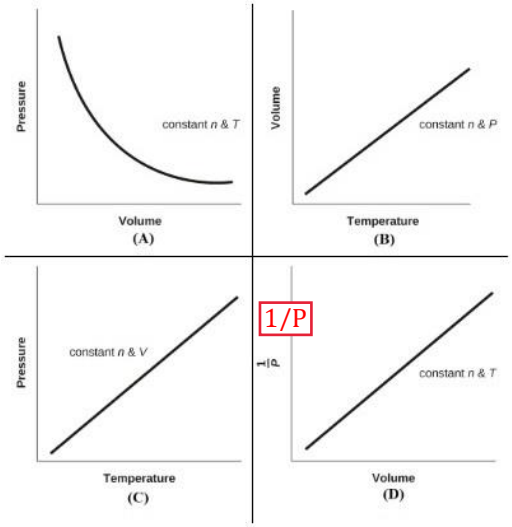
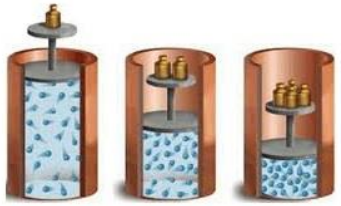
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
53	The car hood becomes warm when engine of car is turned on. In this example which process of heat transfer takes place?	conduction	convection	radiation	transmission	A
54	A cube of ice placed into the hand melts due to _____	conduction	convection	radiation	transmission	A
55	The radiator turned on to warm a house during a cold day is an example of -	conduction	convection	radiation	transmission	A
56	When a piece of hot food stuff is placed onto a porcelain plate, the plate will feel warm to the touch after several minutes due to the _____ of heat from the just-cooked food to the plate.	conduction	convection	radiation	transmission	A
57	Solids are not heated by convection because _____	solid are not free to move from one place to another	molecules only vibrate about fixed position	Both (A) and (B)	None of the above	C
58	_____ is process of transfer of heat from part of boy at higher temperature to part of body at lower temperature with bodily (actual) movement of particles.	conduction	convection	radiation	transmission	B
59	_____ takes place only in fluids, i.e., in case of liquids and gases.	conduction	convection	radiation	transmission	B
60	Conduction plus fluid flow in motion is known as _____	conduction	convection	radiation	transmission	B
61	Which of the following heat flow situations pertains to free or natural convection?	Air conditioning installations and nuclear reactors	Flow of water inside the condenser tubes	Cooling of internal combustion engine	Cooling of billets in atmosphere	C
62	Mark the system where heat transfer is given by forced convection	Chilling effect of cold wind on warm body	Fluid passing through the tubes of a condenser and other heat exchange equipment	Heat flow from a hot pavement to surrounding atmosphere	Heat exchange on the outside of cold and warm pipes	B

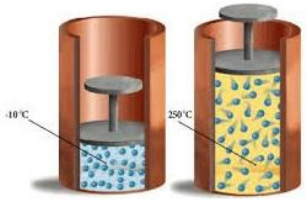
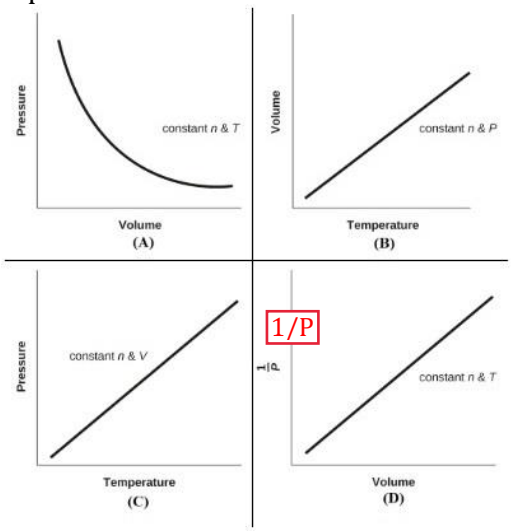
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
63	A finned tube hot water radiator with a fan blowing air over it is kept in rooms during winter. The major portion of the heat transfer from the radiation is due to	Combined conduction and radiation	Radiation to the surroundings	Better conduction	Convection to the air	D
64	Central heating systems in buildings work on principle of _____	conduction	convection	radiation	transmission	B
65	Formation of clouds and trade winds works on the principle of _____	conduction	convection	radiation	transmission	B
66	Sea breeze blows during _____	day	night	winter	summer	A
67	Land breeze blows during _____	day	night	winter	summer	B
68	_____ is the process of transfer of heat in which heat is transferred from one place to other directly without the necessity of intervening medium	conduction	convection	radiation	transmission	C
69	Red hot iron, radiator or electric heater and light emitted by a glowing incandescent light bulb is an example of heat _____	conduction	convection	radiation	transmission	C
70	Light coloured clothes are preferred during _____.	day	night	winter	summer	D
71	Dark coloured clothes are preferred during _____.	day	night	winter	summer	C
72	Thermos flask or bottle used to preserve the hot contents (like milk) from getting cold, or alternatively to store cold contents (like ice) is an example of _____.	conduction	convection	radiation	transmission	C
73	Heat felt on hand when placed above an open fire or an electric lamp is an example of _____	conduction	convection	radiation	transmission	C
74	Greenhouses ensure that crops can be grown even when temperatures outside of the glasshouse might be cool is an example of	conduction	convection	radiation	transmission	C
75	No medium is required for transfer of heat by the process of _____	absorption	conduction	radiation	convection	C

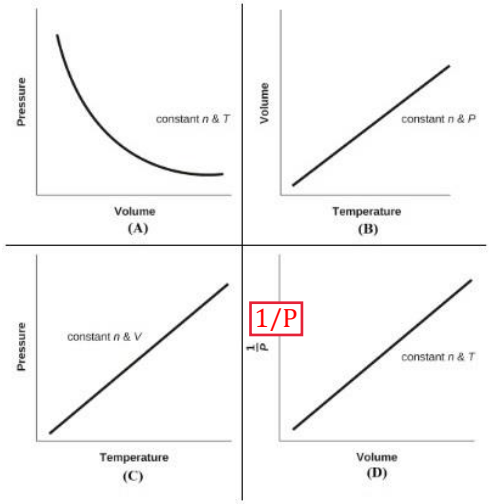
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
76	On a summer day, a scooter rider feels more comfortable while on the move than ~~while~~ at a stop ~~light~~ because	An object in motion captures less radiation	Air has a low specific heat and hence it is cooler	More heat is loss by convection and radiation while in motion	Air is transparent to radiation and hence it is cooler than the body	D
77	Plants need to absorb energy from the sun in the form of solar _____ in order to grow (photosynthesis).	absorption	conduction	radiation	convection	C
78	Which of the following is the fastest process of heat transfer?	Conduction	Convection	Radiation	Isolation	C
79	Why does the bottom of a lake not freeze in severe winter even when the surface is all frozen?	The water has large specific heat	The conductivity of ice is low	The water has large latent heat of fusion	The temperature of the earth at the bottom of the lake is high	B
80	In a pressure cooker cooking is faster because the increase in vapour pressure	increases the specific heat	decreases the specific heat	decreases the boiling point	increases the boiling point	D

Unit – III (2): Gas Laws

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	The behaviour of the gases can be predicted on the basis of - 1. Pressure 2. Volume 3. Temperature 4. Amount of substance (moles)	Pressure	Pressure & Volume	Pressure, Volume & Temperature	Pressure, Volume, Temperature & Amount of substance (moles)	D
2	Force the gas exerts on a given area of the container in which it is contained is called _____	Pressure	Inertia	Stress	None of the above	A
3	SI unit of pressure is	N/m2	Pa	atm	All of the above	D
4	_____ is the three-dimensional space occupied by a gas in container.	Volume	Pressure	Density	All of the above	A
5	SI unit of volume is	m3	cm3	litre	None of the above	A
6	_____ is the measurement of heat or how fast the particles are moving.	Temperature	Conduction	Convection	Radiation	A
7	At 0°C, _____ freezes and _____ will not freeze.	water, alcohol	alcohol, water	oil, alcohol	alcohol, oil	A
8	One mole of a substance contains approximately _____ particles of the substance.	6.22 x 1023	6.022 x 1023	0.622 x 1023	62.2 x 1023	B
9	As per Boyle's law, if P is the pressure and V is the volume at constant temperature, then	PV = constant	P/V = constant	V/P = constant	1/PV = constant	A
10	P1V1 = P2V2 = P3V3 = ……. = PnVn is the general equation of -	Boyle's law	Charles's law	Gay-Lussac's law	Avogadro's law	A
11	In Boyle's law, pressure P, is _____ volume V.	directly proportional to	inversely proportional to	is same as	Both (B) and (C)	B
12	_____ is constant in Boyle's law.	Pressure	Volume	Temperature	Amount of substance	C
13	At constant temperature, the pressure of gas is inversely proportional to volume of the gas. Identify the correct gas law -	Boyle's law	Charles's law	Gay-Lussac's law	Avogadro's law	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
14	Which of the following is the graphical representation of Boyle's Law? 	Both (A) and (B)	Both (A) and (C)	Both (A) and (D)	Only Fig (A)	C
15	Figure represents – 	Boyle's law	Charles's law	Gay-Lussac's law	Avogadro's law	A
16	A gas at 76 cm of mercury occupies a volume of 50 cc at constant temperature. If the pressure of the gas changes to 60 cm of mercury, find the volume occupied by the gas at constant temperature.	75 cc	72.56 cc	69.34 cc	63.33 cc	D
17	As per Charle's law, if V is the volume and T is the temperature at constant pressure, then	VT =constant	V/T = constant	T/V = constant	1/VT = constant	B
18	V1/T1 = V2/T2 = ... = Vn/Tn is the general equation of -	Boyle's law	Charle's law	Gay-Lussac's law	Dalton's law	B

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
19	Figure represents – 	Boyle's law	Charle's law	Gay-Lussac's law	Avogadro's law	B
20	In Charle's law, volume V is _____ absolute temperature T.	directly proportional to	inversely proportional to	is same as	Both (B) and (C)	A
21	_____ is constant in Charle's law.	Pressure	Volume	Temperature	Amount of substance	A
22	Which of the following is the graphical representation of Charle's Law? 	(A) only	(B) only	(C) only	(D) only	C
23	At constant pressure, the volume of gas is directly proportional to absolute temperature of the gas. Identify the correct gas law -	Boyle's law	Charle's law	Gay-Lussac's law	Avogadro's law	B
24	If pressure of gas remains constant, then the volume of gas will _____	be directly proportional to temperature	be inversely proportional to temperature	be same even-though the temperature	be same even-though the temperature	A

				rises	drops	
Q. No.	**Questions**	**Option A**	**Option B**	**Option C**	**Option D**	**Correct Option**
25	A gas at 10°C has its temperature raised so that its volume is doubled, What is its final temperature, if pressure is same?	93°C	193°C	293°C	393°C	B
26	A gas at 40°C occupies a volume of 80 ml. Find the volume occupied by the gas if it is heated at 100°C by keeping pressure constant.	63.56 ml	95.34 ml	190.7 ml	200 ml	B
27	As per Gay-lussac's law, at constant volume,	PT =constant	P/T = constant	T/P = constant	1/PT = constant	B
28	Which of the following is the graphical representation of Gay-Lussac's Law? 	(A) only	(B) only	(C) only	(D) only	B
29	P1/T1 = P2/T2 = ... = Pn/Tn is the general equation of -	Boyle's law	Charle's law	Gay-Lussac's law	Dalton's law	C
30	In Gay-lussac's law, pressure P is _____ absolute temperature T.	directly proportional to	inversely proportional to	is same as	Both (B) and (C)	A
31	_____ is constant in Gay-lussac's law.	Pressure	Volume	Temperature	Amount of substance	B
32	A gas at 75 cm of mercury and the temperature of gas changes from 27°C to 127°C at constant volume, find the pressure exerted by the gas.	353.78 cm	269.2 cm	184.6 cm	100 cm	D

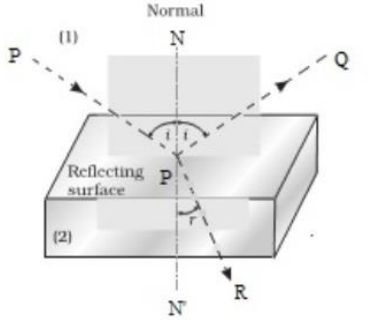
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
33	A given volume of air is at 740 mm pressure at 17°C. What is the temperature when its pressure is 1850 mm?	113°C	226°C	399°C	452°C	D
34	PV = KT is called as ……..	gas equation	general gas equation	ideal gas equation	state of gas	C
35	PV = RT is called as ……..	gas equation	general gas equation	ideal gas equation	state of gas	B
36	PV = nRT is called as ……..	gas equation	general gas equation	ideal gas equation	molar gas equation	D
37	In the equation PV = nRT, what does n stands for?	number	number of moles	constant number	All of the above	B
38	In the equation PV = nRT, what does R stands for?	ideal constant	gas constant	universal gas constant	None of the above	C
39	R is called universal gas constant because value of R is_____ for all gases	same	constant	equal	All of the above	D
40	NTP means ……	nominal temperature and pressure	neglected temperature and pressure	normal temperature and pressure	new temperature and pressure	C
41	AT NTP, one gram molecule of any gas occupies same _____	pressure	volume	temperature	molecules	B
42	At NTP, what is pressure of gas?	76 cm of Hg	76 mm of Hg	100 cm of Hg	100 mm of Hg	A
43	For any gas, at …… temperature, pressure and volume of a gas theoretically become zero.	0°C	+273°C	-273°C	27°C	C
44	Volume of certain quantity of gas at NTP is 24 liter. What will be the pressure exerted by the same quantity of gas when enclosed in a gas cylinder of capacity 20 liter at 27°C.	50.11 cm of Hg	75.06 cm of Hg	100.21 cm of Hg	125.27 cm of Hg	C
45	The quantity of heat required to increase the temperature of unit mass of gas by 1°K or 1°C, at constant volume is called ……	specific heat of gas	specific heat of gas at constant pressure.	specific heat of gas at constant volume.	All of the above	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
46	Heat capacity of a substance is defined as	the amount of heat required to raise the temperature of a substance by 1 °K	the amount of heat required to raise the temperature of a substance by 1 °C	specific heat capacity × mass of the substance	All of the above	D
47	If heat capacity of a 10 g of a substance is 300 J/°K, heat capacity of a 100 g of same substance would be equal to	3 J/°K	30 J/°K	300 J/°K	3000 J/°K	D
48	Specific heat is -	the specific temperature at which the substance is in solid state.	the energy needed to increase the temperature of 1 gm of a substance by 1° C.	the amount of heat conducted in 1 minute.	the heat needed to increase the temperature of 1 gallon of water by 1° F.	B
49	Specific heat capacity of a substance is equal to _____.	the amount of heat required to raise the temperature of a 1 kg of a substance by 1 °K.	the amount of heat required to raise the temperature of a substance by 1 °K.	the amount of heat required to change the phase of a substance from solid to liquid without any change in temperature.	the amount of heat required to change the phase of a substance from liquid to gas without any change in temperature.	A
50	Why specific heat at constant pressure is greater than specific heat at constant volume?	Heat absorbed at constant pressure is used to increase temperature as well as to expand the gas.	Heat absorbed at constant volume is used to increase temperature as well as to expand the gas.	Heat absorbed at constant pressure is used to decrease temperature as well as to expand the gas.	Heat absorbed at constant volume is used to decrease temperature as well as to expand the gas.	A
51	Assuming heat capacity of a 10 g of water to be 42 J/K, heat required to raise its temperature from 25 °C to 35 °C would be	42 J	420 J	4200 J	None of the above	B

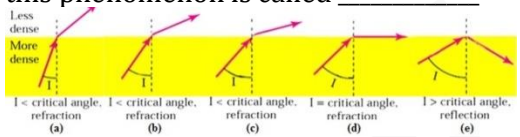
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
52	If a cup of tea at 50 °C is allowed to cool to room temperature, heat released would be (assume room temperature to be equal to 25 °C and heat capacity of cup and tea to be = 5.0 kJ/°K)	25 kJ	50 kJ	125 kJ	250 kJ	C
53	SI unit of heat capacity is	J	J/kg	J/kg-°K	J/°K	D
54	The value of adiabatic index for diatomic gases is ……	1	1.31	1.41	1.66	C
55	The value of adiabatic index for triatomic gases is ……	1	1.31	1.41	1.66	B
56	The value of adiabatic index for mono-atomic gases is ……	1	1.31	1.41	1.66	D
57	Which of the following term does not involve in ideal gas law?	Pressure	Volume	Temperature	Time	D
58	What is the shape of a P-T curve for ideal gas?	Straight line	Parabolic	Hyperbolic	Ellipse	A
59	What is the shape of a V-T curve for ideal gas?	Straight line	Parabolic	Hyperbolic	Ellipse	A
60	What is the shape of a P-V curve for ideal gas?	Straight line	Parabolic	Hyperbolic	Ellipse	C

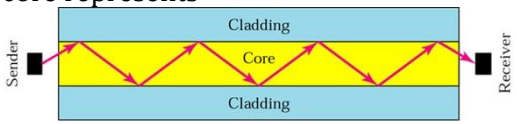
Unit – III (3): Optics

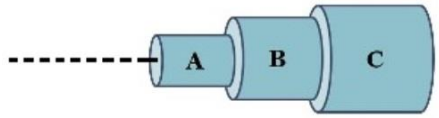
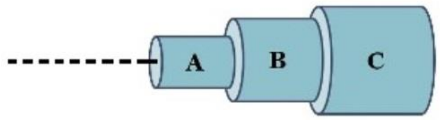
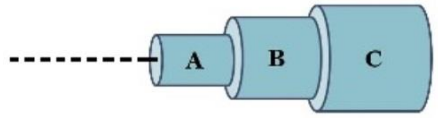
Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
1	If the angle of incidence, θi = 0°, the angle of reflection, θr = _____.	0°	90°	180°	45°	A
2	The angle between the incident ray and the normal to the reflecting surface is called _____.	angle of incidence	angle of reflection	angle of refraction	angle of dispersion	A
3	The angle between the reflected ray and the normal to the reflecting surface is called _____.	angle of incidence	angle of reflection	angle of refraction	angle of dispersion	B
4	A ray of light is incident on a plane mirror and the angle of reflection is 50°. Calculate the angle between the incident ray and the reflected ray.	0°	25°	50°	100°	D
5	According to the laws of reflection,	angle of incidence = angle of reflection	angle of incidence > angle of reflection	angle of incidence < angle of reflection	angle of incidence ≠ angle of reflection	A
6	When light falls on a highly polished surface like a mirror most of the light is sent back into the same medium. This process is called _____.	reflection of light	refraction of light	dispersion of light	deviation of light	A
7	We can see objects because of _____.	reflection	Refraction	total internal reflection	diffraction	A
8	The given statements below are the laws of _____. 1. The incident ray normal and reflected ray, all lie in one plane. 2. The angle of incidence (i) is equal to the angle of reflection (r)	reflection	Refraction	total internal reflection	dispersion	A
9	Angle between incident ray and normal is known as _____.	angle of abnormality	angle of refraction	angle of incidence	angle of reflection	D
10	A ray of light is incident on a plane mirror and the angle of incidence is 25°. What is the angle of reflection?	0°	25°	50°	100°	B
11	A star appears twinkling in the sky because of _____.	scattering of light by atmosphere	reflection of light by atmosphere	refraction of light by atmosphere	diffraction of light by atmosphere	C

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
12	What does 'Q' indicates in the diagram? 	Incident ray	Refracted ray	Reflected ray	Normal	C
13	From figure in Q.12, what does 'R' indicates in the diagram?	Incident ray	Refracted ray	Reflected ray	Normal	B
14	From figure in Q12, what does 'r' indicates in the diagram?	angle of incidence	angle of reflection	angle of refraction	angle of emergence	C
15	Which statements is/are correct about the laws of reflection: (i) The incident ray, normal ray and the reflected ray all lie in the same plane. (ii) The angle of reflection is always equal to the angle of incidence. (iii) The angle of incidence is equal to the angle formed by normal ray. (iv) The angle of reflection is equal to 90°.	Both (i) and (ii)	Both (ii) and (iii)	Both (iii) and (iv)	(i), (ii) and (iv) are correct	A
16	The statements below represents - 1.The incident ray, the refracted ray and the normal to the surface of separation of two media lies in one plane. 2. For any two media, the ratio of the sine of angle of incidence to the sine of angle of refraction is a constant.	Snell's law of reflection	Snell's law of refraction	Condition of total internal reflection	None of the above	B
17	If the light passes from first medium to second medium, then the refractive index of first medium with respect to second medium is written as	μ_{12}	μ_{21}	μ_0	μ_1	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
18	If the light passes from first medium to second medium, then the refractive index of first medium with respect to second medium is written as	μ12	μ21	μ0	μ1	B
19	When light travels obliquely from one transparent medium into another it gets bent. This bending of light is called _____	reflection of light	refraction of light	total internal reflection	total external reflection	B
20	When light travels from a rarer medium to a denser medium, _____ the normal	it bends towards	it bends away from	it is parallel to	it is opposite to	A
21	When light travels from a denser medium to a rarer medium to a rarer medium, _____ the normal	it bends towards	it bends away from	it is parallel to	it is opposite to	B
22	The speed of light is_____ in vacuum.	3 x 105 m/s	3 x 108 m/s	3 x 108 km/s	3 x 106 m/s	B
23	The refractive index of a denser medium with respect to a rarer medium is _____.	1	<1	>1	0	C
24	Which is the correct formula to find refractive index of glass slab?	sin i/sin r	sin r/sin i	sin ((A+δm)/2)/ sin(A/2)	sin (A/2)/ sin((A+δm)/2)	A
25	Which is the correct formula to find refractive index of prism?	sin i/sin r	sin r/sin i	sin ((A+δm)/2)/ sin(A/2)	sin (A/2)/ sin((A+δm)/2)	C
26	The speed of light is 1.2×10^8 m/s in diamond. Find the refractive index of diamond if the speed of light in air is 3×10^8 m/s	1	1.5	2.5	3	C
27	Absolute refractive index of a medium is always greater than 1 because _____.	velocity of light in vacuum is greater than that in the medium.	velocity of light in vacuum is lesser than that in the medium.	all other mediums are optically rarer than vacuum.	velocity of light in vacuum is always constant.	A
28	Critical angle of water when refracted angle is 90° and refractive index for water and air is 1.33 and 1 is _____.	48.8°	49.1°	50°	51°	A
29	Speed of light in quartz is 1.95 x 108 m/s. The refractive index of quartz is _____	1	1.5	1.52	1.54	D
30	Equation to calculate refractive index is _____.	n or μ = c/v	rμ = l/m	i = v/l	μ = v/m	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
31	If the absolute refractive indices of water and glass are 4/3 and 3/2, respectively, then what will be the ratio of velocity of light in water to glass?	2	8/9	9/8	1/2	B
32	Total internal reflection occurs when _____.	light passes from a denser to a rarer medium	light comes into air from vacuum	light goes to vacuum from air	light passes from rarer to denser medium	A
33	The statement below represents - 1. The ray of light must travel from an optically denser medium into an optically rarer medium. 2. The angle of incidence in the denser medium should be greater than the critical angle for a given pair of media.	Snell's law of reflection	Snell's law of refraction	Condition of total internal reflection	None of the above	C
34	Mirage is an example of -	refraction of light only	total internal, reflection of light only	refraction and total internal reflection of light	dispersion of light only	C
35	From the figure, if the angle of incidence is greater than critical, then the refracted ray will be reflected back and this phenomenon is called _____ 	reflection	refraction	total internal reflection	dispersion	C
36	From fig in Q.35, what does figure (e) represents?	reflection	refraction	total internal reflection	dispersion	C
37	Critical angle is the angle at which the angle of refraction is _____.	0°	90°	180°	45°	B
38	At critical angle, the ray instead of being ___ is totally __ back in a denser medium.	refracted, reflected	reflected, refracted	absorbed, reflected	absorbed, refracted	A
39	In TIR, a ray light passing from a denser medium to a rarer medium at an angle greater than the critical angle, gets totally reflected in a _____ medium	denser	rarer	Both (A) and (B)	None of the above	A
40	Which is the correct formula for critical angle?	ic = sin-1(μ1/μ2)	ic = sin-1(μ2/μ1)	ic = sin-1μ	ic = sin-1(1/μ)	A

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
41	If a light travels in a certain medium and it gets reflected off an optically denser medium with high refractive index, then it is regarded as _____	External Reflection	Internal Reflection	Both (A) and (B)	None of the above	A
42	In an optical fiber, the concept of Numerical aperture is applicable in describing the ability of _____	Light Collection	Light Scattering	Light Dispersion	Light Polarization	A
43	In the following diagram of optical fibre, what does the ray passing inside the core represents – 	reflection	refraction	total internal reflection	dispersion	C
44	What is the principle of fibre optical communication?	reflection	refraction	total internal reflection	dispersion	C
45	Is the different angle of entry of light into an optical fiber when the diameter of the core is many times the wavelength of the light transmitted?	Acceptance angle	Modes	Sensors	Aperture	B
46	The bandwidth of optical fiber	900 MHz	900 PHz	900 THz	900 khz	C
47	What is a specific path the light takes in an optical fiber corresponding to a certain angle and number of reflection?	Mode	Grade	Numerical Aperture	Dispersion	A
48	Fiber optic cables operate at frequencies near to _____	20 MHz	200 MHz	2 GHz	800 THz	D
49	In the structure of a fiber, _____ provides additional strength and prevents the fiber from any damage.	Core	Cladding	Buffer Coating	None of the above	C
50	In the structure of fiber optic cable, the refractive index of core is always _____the refractive index of cladding.	Less than	Equal to	Greater than	None of the above	C
51	Outer concentric shell in fiber optic is called _____.	core	cladding	jacket	shield	B
52	The inner portion of the fiber cable is called _____.	Cladding	Coating	Inner conductor	Core	D

Q. No.	Questions	Option A	Option B	Option C	Option D	Correct Option
53	The numerical aperture of a fiber if the angle of acceptance is 15 °, is _____.	0.17	0.26	0.5	0.75	B
54	In the following diagram of optical fibre, label A is 	core	cladding	jacket	shield	A
55	In the following diagram of optical fibre, label B is 	core	cladding	jacket	shield	B
56	In the following diagram of optical fibre, label C is 	core	cladding	jacket	shield	C
57	Thin flexible glass rods to transfer data from one region to another are known as	glass cables	reflection fibers	optical fibers	copper fibers	C
58	As compare to copper wires, optical fibers carry	equal information	more information	no information	less information	B
59	Light is confined within the core of a simple optical fiber by:	total internal reflection at the outer edge of the cladding	reflection from the fiber's plastic coating	total internal reflection at the core cladding boundary	refraction	C
60	Total internal reflection occurs when	Angle of incidence is equal to critical angle	Angle of incidence is greater than critical angle	Total internal reflection doesn't depend on angle of incidence or critical angle	Angle of incidence is less than critical angle	B