## Unit test-II Sem-1 Academic year:2023-2024 Course:All Unit 2 : Electricity, Magnetism & Semiconductors (CO2) And Unit 3: Thermometry And Fibre Optics 1) The principle of conservation of charges states that the total charge on an isolated system remains a) Constant c) Variable b) Small d) Large 2) If a body possesses an equal number of positive and negative charges then the body is electrically a) Positive c) Neutral b) Negative d) Positive or Negative 3) As the distance between 2 electric charges decreases, the electrostatic force between them a) Decreases c) Increases d) Decreases then increases b) Remains Same 4) The unit of electric charge is \_\_\_\_\_. a) Joule c) Webber b) Ampere d) Coulomb 5) The material that does not allow current to flow through it but shows electrical effects are called . c) Electric a) Conductor b) **Dielectrics** d) Permittivities 6) The unit of electric field intensity is . c) N \* C a) C/N d) Ohm/meter b) N/C 7) Electric Potential V is given by the relation . **a)** Q/W <u>c) W/Q</u> b) W\*O d) N/C8) Electric current is defined as the . a) Product of Electric charge and time b)Force per unit positive charge d)Electric charge per unit time c)Time per unit electric charge 9) As the length of the wire increases, the conductivity of conductor . a) Increases c) Remains same b) Decreases d) Decreases then increases 10) The unit of specific resistance is . a) Ohm/meter c) Ohm- meter d) ohm/ ampere b) Ohm- ampere 11) The galvanometer is converted into an ammeter by connecting **a)** High resistance in parallel b)Low resistance in parallel c) High resistance in series d)Low resistance in series 12) Ammeter is always connected in . And voltmeter is connected in with the circuit. a) Series, Series, c) parallel, parallel b) series, parallel d), series-parallel 13) Magnetic intensity is a . a) Scalar quantity c) vector quantity b) Fundamental quantity d) none of the above 14) Outside the bar magnet, the magnetic lines of force move a) North to south c) south to north b) East to west d) west to east

Question Bank-Basic Physics(311305) (K scheme)

15). To obtain maximum resistance, the given resistors should be connected in

<u>a) Series</u>	c) parallel
b)Combination of series and parallel	d) none of these

16). If the length and cross-section	al area of the wire are doubled, its	resistance will be	
<u>a) unchanged</u> b) doubled	c) halved d) four times		
17). out of the following which is n	ot a semiconductor material?		
a) Si	c) Ge		
<u>b) GaAs</u> 18) Majority charge carriers in p-ty	d) Carbon		
18). Wajonty charge carriers in p-ty	ype semiconductors are		
a) electrons b) free electrons	<u>c) holes</u> d) None of these		
19). Semiconductor is the material	having conductivity		
a) Less than Insulators		b) Less than conductor	and insulators
c) Less than conductor an	nd more than insulators	d) None of these	
20). The process of adding an impur	ity to a semiconductor (Si, Ge) is	known as	
a) Impurification	c) addition		
<u>b) doping</u>	d) extrinsic		
21). The minimum voltage required	l for conducting the diode is know	n as	
a) operating voltage	c) conducting v	oltage	
<u>b) Knee voltage or cut-in vol</u>	tage d) critical volta	ge	
22). As operating voltage increases	, static resistance of a diode	-	
a) increases	<u>c) decreases</u>		
b) increase then decreases	d) decreases then incre	ases	
23). Rectifier is a circuit which con	verts		
a) high A.C. into low A.C.	c) low A.C. into high A.	С.	
b) D.C. into A.C.	<u>d) A.C. into D.C</u> .		
24). A wave of light of single frequ	ency or wavelength is called		
a) polychromatic	<u>c) monochromatic light</u>		
d) coherent	d) Non coherent		
25). optical fiber carriesfree	om one end to another end, becaus	e of multiple T. I.R.	
a) electric current	c) fluid		
b) sound	<u>d) light</u>		
26) The state in which temperature	of substance goes on increasing w	r.t time is called as,	
a)Variable state	b)Steady state		
c)Normal state d)	Critical state		
27) Calculate specific resistance of	material of a cable 15m long havi	ng resistance of $2\Omega$ & area 2X10	)⁻ <sup>6</sup> m.
a)0.266X 10 <sup>-7</sup> Ωm	b) 2.66X 10 <sup>-6</sup> Ωm	c) 0.266X 10 <sup>-6</sup> Ωm	d) 26.6X 10 <sup>-7</sup> Ωm
28) If three resistances of $1\Omega$ , $10\Omega$	and $100\Omega$ are connected in paralle	l then the equivalent resistance v	vill be
a)Greater than 100 $\Omega$	b)Less than 1 $\Omega$	c)Between $1 \Omega \& 100 \Omega$ d)N	Jone of these

29) If C is temperature in  ${}^{0}C$ ,F is temperature in  ${}^{0}F$ ,K is temperature in  ${}^{0}K$  then,

a) $C = \frac{F-32}{1.8}$	b) C=K-273		
c) F=1.8C+32	d) All of these		
30) The SI unit of coefficient of thermal co	nducticity is,		
a) Watt-m- <sup>0</sup> K	b) Watt/m- <sup>0</sup> K		
c) m <sup>0</sup> K/Watt	d) m/watt <sup>0</sup> K		
31) Thermal resistor is the thermal co	nductivity.		
a) reciprocal of	b)Equal to		
c)Addition of	d)None of these		
32)Davy's safety lamp is covered by,			
a)Insulating material	b) Good conducting material		
c)Semiconducting material	d)None of these		
33)A hot air balloon is an example of,			
a)Boyle's law	b)Charle's law		
c)Gay lussac's law	d)Newton's law		
34)At N.T.P normal temperature =			
a)273 <sup>0</sup> C	b) -273 <sup>0</sup> C		
c)273 <sup>0</sup> K	d) 0 <sup>0</sup> K		
35)A certain mass of gas occupies 40cm <sup>3</sup> at	27ºC .Find its volume at 57ºC,Pressure is constant		
a) 34cm <sup>3</sup>	b) 38cm <sup>3</sup>		
c) 44cm <sup>3</sup>	d)50cm <sup>3</sup>		
36)When light travel from one medium to a	nother medium there is change in		
a) velocity b) direction c)	wavelength d) all of these		
37) As per refraction, when light enters from glass (denser) to air to (rare) medium			
<b>a) i<r< b=""> b)i&gt;r</r<></b>	c) r <i d)i="r&lt;/td"></i>		
38) Conditions for T.I.R.(Total internal refle	ection)		
a) (only) angle of incidence should be greater than $\theta_c$ (critical angle)			
b) (only) $\mu_1$ should be greater than $\mu_2$			
c) both (a) and (b)			
d) none of these			
39) The sine of acceptance angle of the optical fiber is known as,			
a)Acceptance angle	b)Numerical aperture		
c) Acceptance cone	c) Acceptance cone d)All of these		
40) Based on variation of R.I of core, the two types of optical fiber are,			
a)Step index and single mode	b)Step index and Graded index		
c)Graded index and multimode	d)Single mode and multimode		

41) Calculate velocity of light in glass of R.I 1.6.

a)1.5 X 10°m/s	b) 2X 10 <sup>8</sup> m/s		
c) 3X 10 <sup>8</sup> m/s	d) 1.875 X 10 <sup>8</sup> m/s		
42) Find the angle of incidence if angle of refraction	n is $30^{\circ}$ for a glass having R.I 1.5.		
a)35.23 <sup>0</sup>	b) 48.59 <sup>0</sup>		
c)40.12 <sup>0</sup>	d) 55 <sup>0</sup>		
43) Thickness of a plate is 8cm. the temperature of	two faces are 100°C and -20°C. Find		
the temperature gradient.			
a)10 <sup>0</sup> C/cm	b)20 <sup>0</sup> C/cm		
c)25 <sup>0</sup> C/cm	d)15 <sup>0</sup> C/cm		
44) A gas at $25^{0}$ C has its temperature raised so that	its volume doubles, Pressure remains constant. Find its final temperature		
a) 273°C	b) 323 <sup>0</sup> C		
c) 293 <sup>0</sup> C	d) 300°C		
45) For 1 kg mole of a gas, the value of universal ga	as constant R in equation, PV=RT is,		
a)83.149 J/ <sup>0</sup> K kg mole	b) 0.83149 J/ <sup>0</sup> K kg mole		
c) 8314.91 J/ <sup>0</sup> K kg mole	d) 4200 J/ <sup>0</sup> K kg mole		
46) The volume of a certain quantity of a gas at NT	P is 24 liters. What will be pressure exerted		
by same quantity of gas in a gas cylinder of 20	liters at 27 <sup>o</sup> C.		
a)100.22 cm of Hg	b)70 cm of Hg		
c)90cm of Hg	d)120.7 cm of Hg		
47) The light gathering power of optical fiber is call	led as,		
a)Acceptance angle	b)Numerical aperture		
c) Acceptance cone	d)All of these		
48) As per refraction, when light enters from air to	(rare) to glass (denser) medium		
a) i <r b)="" r="">i c) i=r</r>	<u>d) i &gt;r</u>		
49) The critical angle $\theta_c$ is defined as the angle of in	ncidence at which angle of refraction is		
a)45 <sup>0</sup> b)90 <sup>0</sup> c) less than 4	45° d) greater than 90°		
50) Following is the one necessary condition for pro-	opagation of light through optical fiber.		
a) μcore>μ cladding	b) μcore<μcladding		
c) µcore=µcladding	d) None of these		
51) In graded index optical fiber, the R.I of,			
a)Core is uniform throughout the fiber	b)Core & cladding is same		
c)Core is not uniform & it decreases gradu	ally from core axis to boundary of core		
d)None of these			
52) The refractive index of water is 1.3. The refrac	tive index of glass is 1.5 Find the velocity of light in glass.		
a)1.5 X 10 <sup>8</sup> m/s	a)1.5 X 10 <sup>8</sup> m/s b) 2 X 10 <sup>8</sup> m/s		
c) 3X 10 <sup>8</sup> m/s	d) 1.875 X 10 <sup>8</sup> m/s		

53) The coefficient of the	ermal conducticity c	of good conducto	rs of heat is	
a) low		<u>b) hi</u>	<u>h</u>	
c) medium		d) none of these		
54) Convert 22 $^{0}$ C to $^{0}$ F				
<u>a)71.6 <sup>0</sup>F</u>		b)34 <sup>0</sup> F		
c)251 <sup>0</sup> F	d)76.1 <sup>0</sup> F			
55) Two like charges of 2	20μC are placed 5cm	n apart in a medi	um of dielectric constant 2.5 Calc	ulate force between them
a) 288N	b) 144N			
c) 576N	d) 1152N			
56) The amount of heat r	required to raise the	temperature of _	of water by 1°C is called as Kil	ocalorie.
a)1gm		<u>b)1kg</u>		
c)1liter		d)1ml		
57) Calculate critical ang	gle if R.I of core is 1	.55 and R.I of cl	adding is 1.35	
a) 60.57 <sup>0</sup>	b) 54.23 <sup>0</sup>			
c) 57.25 <sup>0</sup>	d) 62.85 <sup>0</sup>			
58) A battery of emf 6V	v is connected across	s a resistance of	$2\Omega$ , calculate the current flowing	g through the resistance.
a) 72 A	b) <b>0.5A</b>	c) 0.2 A	d) 2A	
59) The mechanical equi	valent of heat(J)=			
a) 4.2J/Cal	b)4.2J/kcal			
c)4200J/cal	d)420J/cal			
60) The magnetic lines o	f force are not affec	ted by	naterial	
a)Magnetic		b)Non-Magn	etic	
c)Semi-magnetic		d)both a & c		