FE/F.Y.B.Tech. (All Branches) (Part-I) (Sem-I&II) Oct./Nov. 2021 Examination
ENGINEERING PHYSICS (CBCS)
Sub. Code: 71811/59176

Day and Date: Tuesday, 22-03-2022 **Total Marks: 50**

Time: 11.00 am to 12.00 pm

Answer Key

				Correct Option
Q. 1)	In case of diffraction grating, if 'a' is the width of slit and 'b' is the width of opaque portion, then a + b is called as _____			D
	A) Grating constant	B) Grating element		
	C) Grating space	D) All of the above		
Q. 2)	How many orders will be visible if the wavelength of incident light is 6328 A^0 and the number of lines per cm on the grating is 6500?			C
	A) 1	B)3		
	C)2	D)4		
Q.3)	A grating has 6000lines per cm drawn on it. If width of grating is 10cm, then the smallest wavelength separation that can be resolved in the third order in 6000 A^0 wavelength region is			C
	A) 0.33 A^0	B) 3.3 A^0		
	C) 0.033 A^0	D) 0.35 A^0		
Q. 4)	In a calcite crystal			D
	A) O-ray moves faster than E-ray	B) E-ray moves faster than O-ray		
	C) Both the rays(O and E) have same velocity in a direction along optic axis	D)both (B) and (C) correct		
Q. 5)	The property of rotating the plane of vibration of a plane polarized light about its direction of travel possessed by certain substances is called--			B
	A) birefringence	B) optical activity		
	C)chemo luminescence	D) none of the above		
Q. 6)	Which are the active centers in ruby laser--			A
	A) Chromium ions	B) Aluminium ions		
	C) Neon atoms	D) Oxygen atoms		
Q. 7)	The pumping technique used in case of gas laser is			B
	A)optical pumping	B)electric discharge		
	C)injection current	D)chemical reactions		
Q. 8)	The technique by which image is obtained from a hologram is called as _____			C
	A)Formation	B)Construction		
	C Reconstruction	D)projection		

Q. 9)	The ends of the ruby rod work as			C
	A) Pumping source	B) Active medium		
	C) Cavity mirrors	D) All of the above		
Q. 10)	Choose the correct statement: The numerical aperture of a fiber -			B
	A) is a function of the fiber dimension	B) is dependent on the refractive indices of the core and cladding		
	C) is independent on the refractive indices of the core and cladding	D)is a function of length of the optical fiber		
Q. 11)	Stair carpet is used to remove the problem of ---- effect.			C
	A) resonance effect	B) echo		
	C) echelon effect	D) all of the above		
Q. 12)	Which of the following alternative represents Sabine's formula for reverberation time?			B
	A)$T = \frac{0.651V}{\sum aS}$	B) $T = \frac{0.165V}{\sum aS}$		
	C)$T = \frac{\sum aS}{0.651V}$	D)$T = \frac{\sum aS}{0.165V}$		
Q. 13)	The volume of an auditorium is 9500m^3.The total absorption in the auditorium is 1045 O.W.U. Reverberation time of the auditorium is			D
	A)1.05 second	B)1.55 second		
	C)1.525 second	D)1.5 second		
Q. 14)	What is the relation between primitives and interfacial angles for cubic structure?			C
	A) All sides are unequal; all angles are unequal.	B) Two sides are equal; all angles are equal with 90°.		
	C) All sides are equal; all angles are equal with 90°.	D) All sides are unequal; two angles are equal with 90°.		
Q. 15)	How many axis of symmetry are possible for cubic crystal Structure?			B
	A) 23	B) 13		
	C) 9	D) 6		
Q. 16)	What is the interplanar spacing for (132) plane in a SC lattice, where the lattice constant is 4.2A.U.			C
	A)1.40 A^0	B)2.40 A^0		
	C) 1.12 A^0	D) 1.90 A^0		
Q. 17)	Copper has FCC structure and atomic radius is 1.278 A.U. Calculate its density if Atomic weight of copper is 63.54			A
	A) 8939 Kg/m^3	B) 3.6174 Kg/m^3		
	C) 79999 Kg/m^3	D) None of above		
Q. 18)	Small hard balls are allowed to rotate inside a container and then it is made to fall on a solid with a high force to crush the solid into nanoparticles. This principle is used in--			C
	A) sol gel method	B) Bottom-up approach		
	C) Ball milling method	D) Vapor deposition method		
Q. 19)	Scanning tunneling microscope can be used to see image of --			A
	A) Conducting samples	B) Non conducting samples		
	C) Both conducting as well as non-conducting samples	D) None of above		

Q. 20)	Properties of material are different at nano level due to-			C
	A) Increase in surface to volume ratio	B) Quantum size (or quantum confinement) effect		
	C) Both (A) and (B)	D) None of the above		
Q. 21)	Richard Feynman is often credited with predicting the potential of nanotechnology. What was the title of his famous speech given on December 29, 1959?			D
	A) There is a tiny room at the bottom	B) Things get nanoscopic at the bottom		
	C) Bottom? What bottom?	D)There is plenty of room at the bottom.		
Q. 22)	X rays of wavelength 0.15 nm are scattered from a block of carbon. What is the wavelength of X-rays scattered at 0 degree?			A
	A) 0.15 nm	B) 0.154 nm		
	C) 0.165 nm	D) 0.178 nm		
Q. 23)	What is the de-Broglie's wavelength associated with a 2000 kg car having a constant speed 30m/s.			A
	A) 1.105 $X10^{-38}$m	B) 3.315$X10^{-36}$m		
	C) 9.93 $X10^{-40}$m	D) 0.1105x10^{-32}m		
Q. 24)	If the certainty in the position measurement of a particle increases, then the certainty in the momentum measurement of the same particle during simultaneous measurement			B
	A) increases	B) decreases		
	C) is not affected	D)none of these		
Q. 25)	Which of the following statement is not correct?			D
	A) Lighter the matter particle; grater is its de Broglie wavelength.	B) Faster the matter particle, smaller is the wavelength		
	C) Phase velocity of matter wave is greater than the speed of light	D) The phase velocity of matter wave is constant.		

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