L 179 Page: 2

SCHEME OF VALUATION

Scoring Indicators

Revision : Revision(15) 2003			Course Code: 2003	
Course Title: ENGINEERING PHYSICS-II				
Qst. No	Scoring Indicators	Split up score	Sub Total	Total
	Part A			
I (1)	Kg m^2	1		
	Newton-meter	1	2	
I (2)	E=-GMm/r ; explain terms	2	2	10
I (3)	Define resistance	1		
	Define resistivity	1	2	
I (4)	Define population inversion	2	2	
I (5)	Define chain reaction/Figure of chain reaction	2	2	
	Part B			
II (1)	Derive **$I=MR^2/2$**	6	6	
II (2)	Derive $a=v^2/r$	6	6	
II (3)	Derive $g_h=g(1-2h/R)$	3		
	$g_d=g(1-d/R)$	3	6	
II (4)	F=iBl	1		
	C=BiA	1		
	$i=\alpha\theta/nBA$	1		
	Explanation	1	6	30
	Figure of galvanometer	2		
II (5)	Explain shunt resistance	2		
	Derive equation	4	6	
II (6)	Principle and working	3		
	Figure of Laser	3	6	
II (7)	Fuel	1		
	Moderator	1		
	Control rods	1		
	Coolant	1		
	Structure	1		
	Electricity production from steam	1	6	
	Part C			
III (a)	Explain banking of road with $\tan(\theta)=v^2/rg$	3	3	
(b)	$h=v^2D/rg$	2		
	h=0.066 m	4	6	
(c)	$F=mr\omega^2$	1		
	ω= 10 rad/s	2		
	$F=mv^2/r$; $a= mv^2/r=F/m$	1		15
	$A=100\ m/s^2$	2	6	
IV (a)	Define radius of gyration/ $k=(I/M)^{1/2}$	3	3	
(b)	Parallel axes theorem	3		
	Perpendicular axes theorem	3	6	
(c)	$I= 3*0.5^2 + 1*0.5^2 + 2*1.0^2 + 3*1.5^2=9.75\ kgm^2$	3		
	$k=(I/M)^{1/2}=(9.75/11)^{1/2}=0.94$ m	3	6	

V (a)	Define escape velocity	3	3	15
(b)	Derive $v_e = (2gr)^{(1/2)}$	6	6	
(c)	$v_e = (2gR)^{(1/2)} = (2GM/R)^{(1/2)}$	2	6	
	$v_e = 0.24 * 10^4$ m/s	4		
VI (a)	State Newton's law of gravitation $F = Gm_1m_2/d^2$	3	3	
(b)	Derive $v = R\ (g/R+h)^{(1/2)}$	6	6	
(c)	V=7266 m/s	6	6	
VII (a)	State V=IR	3	3	15
(b)	Derive balancing condition	4	6	
	Figure	2		
(c)	$1/R_p = 1/R_1 + 1/R_2 + 1/R_3 = 1/20 + 1/5 + 1/20$; $R_p = 10/3\ \Omega$	6	6	
VIII (a)	Explain terms in the equation $dB = \mu_0/4\pi\ (idl \sin(\theta)/r^2$	3	3	
(b)	Explain the equation $i_g = i\ S/(G+S)$	4	6	
	Figure	2		
(c)	$F = ilB\sin(\theta)$	2	6	
	F=1.56 M	4		
IX (a)	Describe work function	3	3	15
(b)	$h\upsilon = h\upsilon_0 + mv^2/2$	3	6	
	$v = \{(h\upsilon - h\upsilon_0)/m\}^{(1/2)}$	3		
(c)	$v = 0.84 * 10^6$ m/s	6	6	
X (a)	Electricity production	1	3	
	Radio isotope are produced	1		
	Generation of fissile materials for fast breeder reaction	1		
(b)	Use E=mc2 to explain nuclear fission and fusion	2	6	
	Example of nuclear fission reaction	2		
	Example of fusion fusion reaction	2		
(c)	Mass difference = (3.0160+2.0147)-(4.0026+1.0087) u	2	6	
	= 0.0194 u	2		
	Energy = 0.0194*931 = 18.06 MeV	2		