SCHEME OF VALUATION
(Scoring Indicators)

Revision :2015 Course Code: 2003
Course Title : Engineering Physics II

Qst.No	Scoring Indicator	Split up score	Sub Total	Total
I	**Part A**			
1.	Definition of angular velocity. $\omega = \Theta / t$	1	2	
	$V = S/t$ and $V = r\omega$	1		
2	Force = B i l SinΘ	1	2	
	Ans. F = 0.16 N	1		10
3	Statement	1	2	
	Attain the formula with G	1		
4	Each advantage carries one mark	1 + 1	2	
5	Definition of radius of gyration	1	2	
	Equation $I=MK^2$	1		
II	**Part B**			
1	Variation of "g" with altitude – derivation	2		
	Formula $g_h = g(1-2h/R)$	1	3	6
	Variation of "g" with depth - derivation	2	3	
	Formula $g_d = g(1-d/R)$	1		
2	Statement and explanation of two laws.	1	3	6
	Wheatstone's bridge – Derivation	2		
	Figure and formula P/X=R/S	2 1	3	
3	Concept of photon E=hv	1	4	
	Photoelectric work function ϕ	3		6
	Concept of K.E of photoelectrons	2	2	
4	Derivation formula $hv=hv_0+1/2mv^2$	3		

	Concept and definition of banking	3		6
	Formula $h = v^2 D / rg$			
5	Derivation	4	4	
	Figure	1	2	6
	Formula $I=MR^2/2$	1		
6	Derivation formula Rotational K.E. ¼ Mv^2	3	3	
	Total K.E =3/4 Mv^2	2		
	Rotational K.E= 1/3 Total K.E	1	3	6
7	Ohms law - Statement with formula	2	2	
	Series combination $R_S=R_1+R_2$	2	2	6
	Parallel combination $R_p= 1/R_1+1/R_2$	2	2	
III	**Part C**	1	1	
a)	½ $Iw^2= 600$ J	1	1	3
	$w^2= 2x600/3.1$			
	$w = 19.67$ rad/sec	1	1	
b)	Figure	2	2	6
	Derivation	4	4	
c)	First equation	1		
	Second equation	1	3	
	Third equation	1		
	$\tan\Theta = v^2/rg$	2		6
	$\Theta=11.5^\circ$	1	3	
IV a)	$L = I\omega$, solve $\omega= 32$ rad/sec	1		
	$\alpha= \omega^2-w^1/t =4$ rad/sec^2	1	3	3
	$\tau= I\alpha = 48$Nm	1		
b)	Parallel axes theorem Statement	1		
	Figure	1	3	
	Formula	1		6
	Perpendicular axes theorem Statement	1		
	Figure	1		
	Formula	1	3	

c)	Figure	1		
	$I = \sum m_i r_i^2$	2	3	
	I= 3x 42+4x22+0+4x22+3x42	2		6
	Ans I =128 Kgm^2	1	3	
V				
a)	$g = GM/r^2$	1		
	Formula substitution	1	3	3
	Ans $g = 1.67m/sec^2$	1		
b)	Definition and description	2		6
	Derivation formula $h = [T^2gR^2/4\pi^2]^{1/3} - R$	4	6	
c)	Definition orbital velocity	1		
	Deduce formula $v = R\sqrt{g/R+h}$	3	4	6
	Obtain formula $V_0 = \sqrt{gR}$ Ans 7.92km/sec	2	2	
VI				
a)	$g = GM/R^2$	1		
	$M = 4/3\ \pi R^3\rho$	1	3	3
	$\rho = 3g/4\pi GR$	1		
b)	Definition	1		
	Derivation of the formula $Ve = \sqrt{2gR}$	3	4	6
	V_e on moon =2.395km/sec	2	2	
c)	Definition and description of GPS	2	2	
	Derivation of equation $T = 2\pi\sqrt{(R+h)^3/gR^2}$	4	4	6
VII				
a)	Length $l = RA/\rho$	1		
	Substituion	1	3	3
	Ans 3.5m	1		
b)	Figure	1		
	Derivation formula $i_g = i_S/G+S$	2	3	

	R = V/ig –G	1		
	R = 490Ω in series	2	3	6
c)	BiotSavarts law statement with formula	3	3	
	Derivation of formula B = $\mu_0 ni/2a$	3	3	6
VIII				
a)	B =10^{-7} 2i/a	1	3	
	B = $15x10^{-5}$ T	2		3
b)	Moving Coil Galvanometer Principle	1		
	Figure and construction	2	3	
	Theory and working	3	3	6
c)	Figure	2	2	
	Theory , formula and working	4	4	6
IX				
a)	Formula $\lambda_0 = hC/\phi$	1		
	Ans λ_0 = 276.25nm	1	3	3
	$V_0 = c/\lambda_0$	1		
b)	Reactor components with functions	3	3	
	Figure	1		6
	Working of the reactor	2	3	
c)	Formula $E = mc^2$ with description	2		
	Nuclear fission reaction with equation	2	6	6
	Nuclear fusion reaction with equation	2		
X				
a)	Total mass before reaction = 4x1.00783u = 4.03132u			
	Total mass after reaction = 4.0026+ 2x0,005 u = 4.0126u	1	3	3
	Difference in mass = 0.01872 u	1		
	Energy released = 0.01872 x931 = 17.428MeV	1		
b)	Principle of LASER action	2		
	Characteristics of LASER	2		
	Application of LASER	2	6	6

c)	Figure Construction Working of Ruby Laser	2 2 2	6	6

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