1ST SEM./COMMON TO ALL BRANCHES/2020(W) OLD

BST-101 ENGINEERING PHYSICS

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2

Figures in the right hand margin indicates marks

1.		Answer **All** questions	2 x 10
	a.	State the principle of Homogenity.	
	b.	Define cross product of 02 vectors.	
	c.	What is static friction?	
	d.	Define uniform circular motion.	
	e.	What is Doppler's effect?	
	f.	Define Mechanical Equivalent of Heat	
	g.	What is Fibre Optics?	
	h.	Under what conditions does Ohm's law hold good?	
	i.	Define Magnetic Flux Density ($\vec{B}$).	
	j.	State Lenz's law.	
2.		Answer **Any Six** Questions	5 x 6
	a.	02 forces equal in magnitude, have magnitude of their resultant equal to either. Find the angle between them.	
	b.	State & explain Kepler's laws of Planetary motion.	
	c.	Compare longitudinal waves with transverse waves.	
	d.	Explain Total Internal Reflection & Critical Angle.	
	e.	The total capacitance of 02 capacitors is 2 μF when connected in series and 9 μF when connected in parallel. Find out the capacitance of each other.	
	f.	State & explain Kirchoff's (i) Current Law (ii) Voltage Law	
	g	Establish Einstein's photo electric equation.	
3		Obtain equations for (i) Trajectory (ii) Maximum Height Obtained (iii)Time of Flight of a projectile fired at an angle 'Θ' with horizontal.	4+3+3
4		Explain Simple Harmonic Motion (SHM) as a projection of Uniform Circular Motion along any diameter. Derive formula for velocity & acceleration of a body in SHM.	5+3+2
5		Derive the relation C_P-C_V =R where symbols used carry usual meaning	10
6		State & explain Coulomb's Law in Magnetism. Explain unit pole using the law.	5+5
7		State & explain Faraday's law of electromagnetic Induction. Compare Fleming's Right Hand Rule and Left Hand Rule.	5+5