## Bachelor of Science (F.Y.B.Sc.) First Semester

## **E-01-Electronics Paper-I** (Basic Electronics and Semiconductor Devises)

P. Pages: 1 Time: Three Hour			urs  GUG/W/18/1  Max. Marks	G/W/18/1206 ax. Marks : 50	
	Notes :	1. 2. 3.	Draw neat diagram wherever necessary.		
1.	Е	Either:			
	a	)	What is resistor? Explain the construction and properties of carbon composition type of resistor.  Explain in brief.  i) Mica Capacitor  ii) Ceramic Capacitor  OR	6+4	
	b	_	Explain the construction and working of transformer.  Explain the different types of losses occurs in transformer.	6+4	
2.	Е	Eithe	r:		
	a		What is p-n junction diode? Explain the formation of depletion region in p-n junction diode.  Draw and explain V-I characteristics of forward biased diode.  OR	6+4	
	b		Explain the working of Half wave rectifier with Input and output waveforms. Explain Avalanche effect and Zener effect.	6+4	
3.	E	Either:			
	a	)	Explain the construction and working of NPN transistor. Explain CB configuration of NPN transistor.  OR	5+5	
	b		What is amplifier? Draw the circuit diagram of CE amplifier and explain its working. In a transistor $\alpha = 0.95$ and $I_E = 1\text{mA}$ . find the value of $I_C$ and $I_B$ .	6+4	
4.	E	Eithe	r:		
	a	)	Explain the construction and working of N-channel JFET.  Define FET Parameters	6+4	
		:	i) Transconductance $(g_m)$ . ii) Amplification Factor $(\mu)$		
			OR		
	b		Explain the construction and working of TRIAC. Explain SCR as a switch with suitable diagram.	6+4	
5.	a) E	Explain the concept of self and mutual Inductance. 2½			
	b) E	Explain N-type semiconductor. 2½			
	c) E	Expla	ain the importance of output characteristics of CE mode configuration of transistor.	21/2	
	d) D	Discu	uss the advantages and disadvantages of MOSFET.  ***********************************	21/2	