

B.Sc. (Part-I) (Semester-I) Examination
ELECTRONICS
(Basic Electronics)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) Question No. 1 is compulsory.

(2) Draw neat diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) The MOSFET stands for _____.

(ii) LED stands for _____.

(iii) IC stands for _____.

(iv) The unit of resistance is _____. 2

(B) Select the correct answers :

(i) The number of P-N junctions in BJT are _____.

(a) Three

(b) Two

(c) One

(d) None of the above ½

(ii) An ideal current source has _____ internal resistance.

(a) Infinity

(b) Zero

(c) High

(d) None of these ½

(iii) The half wave rectifier circuits use :

(a) One diode

(b) Two diodes

(c) Three diodes

(d) Four diodes ½

(iv) The CRO stands for :

(a) Cathode Ray Oscilloscope

(b) Cathode Ray Oscillator

(c) Current range Oscillator

(d) None ½

(C) Answer the following questions in one sentence :

(i) What is rectifier ?

(ii) What is step-down transformer ?

(iii) What is UJT ?

(iv) Define operating point. 4

2. **EITHER**

(A) Explain the construction and working of transformer. 6

(B) Find out the value of resistor having following colour code :

(i) Brown, Red, Blue and Silver

(ii) Red, Brown, Red and Gold

(iii) Yellow, Brown, Blue and Gold 6

	OR	
	(P) State and explain KVL and KCL.	5
	(Q) State and prove Norton's theorem.	7
	EITHER	
3.	(A) Explain the construction and working of CRT with neat diagram.	8
	(B) What is loading effect ? Explain.	4
	OR	
	(P) What is ohm meter ? Explain series type ohm meter.	6
	(Q) Explain the construction and working of multirange D.C. voltmeter.	6
4.	EITHER	
	(A) What is P-N junction ? Explain forward and reverse characteristics of P-N junction diode.	6
	(B) Explain construction and operation of full-wave rectifier.	6
	OR	
	(P) Explain regulated power supply with suitable block diagram.	6
	(Q) How zener diode is used as voltage regulator ? Explain.	6
5.	EITHER	
	(A) What is transistor ? Explain the operation of NPN transistor with suitable diagram.	6
	(B) Define α and β of a transistor and obtain relation between α and β .	6
	OR	
	(P) Define Stability Factor.	2
	(Q) Draw the circuit diagrams of PNP transistor in CB and CE mode.	4
	(R) Explain amplification action of CE amplifier.	6
6.	EITHER	
	(A) Explain construction and working of photodiode.	6
	(B) State the application of LED.	2
	(C) Draw electrical symbols of UJT, LDR, SCR and LED.	4
	OR	
	(P) Explain the construction and operation of FET.	6
	(Q) Define μ , g_m and r_d of FET and derive the relation between them.	6
7.	EITHER	
	(A) Explain the Fabrication of diode in monolithic IC.	6
	(B) Explain :	
	(i) Epitaxial Growth	
	(ii) Diffusion steps in monolithic ICs.	6
	OR	
	(P) Explain the photolithographic process of IC Fabrication.	8
	(Q) State the advantages and disadvantages of ICs.	4