

First Semester B. Sc. (Part - I) Examination

1 S ELECTRONICS

(Basics of Electronics)

P. Pages : 7

Time : Three Hours ;

[Max. Marks : 80

- Note :** (1) Question no. **One** is compulsory.
(2) Draw neat diagram wherever necessary.

1. (A) Fill in the blanks :—

- (i) KCL stands for _____ .
- (ii) The unit of inductance is _____.
- (iii) CRO stands for _____ .
- (iv) UJT stands for _____ 2

(B) Choose the correct answer :-

- (i) The limit of capacitance is _____
 - (a) Farad
 - (b) Henry

- (c) Volt
- (d) None
- (ii) In transistor, $I_E =$ _____
- (A) $I_B + I_C$
- (B) $I_{CEO} + I_C$
- (C) $I_{CBO} + I_B$
- (D) $I_{CEO} + I_{CBO}$
- (iii) The Number of P-N junctions in SCR is _____
- (A) Two
- (B) Three
- (C) One
- (D) None of these.
- (iv) The FET is _____
- (A) Bipolar
- (B) Unipolar

(C) Monopolar

(D) None of these

2

(C) Answer the following in One sentence :-

(i) What is resistor ?

(ii) Define ohm meter ?

(iii) What is diode ?

(iv) What is LSI ?

4

EITHER

2. (A) Explain Mica and Ceramic capacitors.

6

(B) Explain Air core, Iron core and ferrite core inductors.

6

OR

(P) State and prove maximum power transfer theorem.

7

- (Q) Explain the concept of Ideal voltage and current source. 5

EITHER

3. (A) Explain construction and working of multirange ammeter. 6
- (B) What is ohm meter ? Explain series type ohm meter. 6

OR

- (P) What is C. R. O. ? Explain with block diagram. 6
- (Q) Explain the use of C. R. O. for the measurement of frequency and amplitude. 6

EITHER

4. (A) Explain reverse biased PN Junction diode with reverse characteristics. 6

- (B) Explain construction and working of full wave rectifier circuit. 6

OR

- (P) What is filter circuit ? Explain capacitor filter. 6

- (Q) How Zener diode is used as a voltage regulator? Explain. 6

EITHER

5. (A) What is transistor ? Explain the working of NPN transistor. 8

- (B) Draw the I/P and O/P characteristics of transistor in CE mode and explain output characteristics. 4

OR

- (P) Show that $\alpha = \frac{\beta}{1+\beta}$ and $\beta = \frac{\alpha}{1-\alpha}$ 6

- (Q) Explain amplification action of CE amplifier. 6

EITHER

6. (A) Explain construction and working of SCR. 6
(B) What are the parameter of FET ? Explain. 6

OR

- (P) Explain construction and working of LED. 6
(Q) Explain construction and working of photo voltaic cell. 6

EITHER

7. (A) State the advantages and disadvantages of IC's. 4
(B) Explain the following steps of monolithic IC.
(i) Wafer preparation.
(ii) Epitaxial growth.
(iii) Oxidation.
(iv) Metallization. 8

OR

- (P) Explain the Fabrication of resistor and diode
in IC's. 8
- (Q) What is IC ? Give its classification. 4



