Bachelor of Science (B.Sc.) Semester—II (C.B.S.) Examination

ELECTRONICS (SEMICONDUCTOR DEVICES)

Compulsory Paper—1

Time : Three Hours] [Maximum Mark : 50

Note :— (1) All questions are compulsory and carry equal marks.

(2) Draw neat diagrams wherever necessary.

EITHER

1. (A) Differentiate between BJT and FET. Explain how DE-MOSFET can be used in depletion and enhancement mode. 3+7

OR

(B) Explain construction and working of n-channel JFET. Explain various parameters of JFET. 6+4

EITHER

2. (A) Explain construction and working of SCR. Explain its V-I characteristics.

Explain construction of UJT. Explain its use as relaxation oscillator. 5+5

OR

(B) Explain operation of TRIAC in four different modes. Explain construction and working of DIAC. 6+4

EITHER

3. (A) Explain h-parameters. Find the following parameters of CE amplifier using h-parameters :

(i) Ai (ii) Av (iii) Zi. 4+6

OR

(B) Explain class A, B and C amplifiers with the help of neat waveforms.

Explain different notations used for amplifier circuit. 6+4

EITHER

4. (A) Differentiate between voltage and power amplifiers. Explain construction and working of class B push-pull amplifier. Derive the expression for efficiency of class B amplifier. 2+5+3

OR

(B) Explain transformer coupled class A amplifier in detail. State its advantages and disadvantages. 6+4

5. Attempt any **TEN** :—

(a) Why FET is called as voltage controlled device ?

(b) Draw the symbols of n-channel MOSFETs.

(c) What is Pinch-off voltage ?

(d) State any two applications of SCR.

(e) Write the full forms of TRIAC and UJT.

(f) Draw the well labelled symbols of SCR and DIAC.

(g) What is two port network ?

(h) What do you mean by cascading in amplifiers ?

(i) State the uses of direct coupled amplifier.

(j) State any two advantages of class A amplifier.

(k) What is cross-over distortion ?

(l) What is impedance matching in amplifiers ? 1×10=10