NKT/KS/17/5096

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

ELECTRONICS

(Semiconductor Devices)

Compulsory Paper—1

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory.

(2) Draw diagrams wherever necessary.

EITHER

1. (A) Give construction and working of an N-Channel JFET. Explain output and transfer characteristics of a JFET. 5+5

OR

(B) Explain the construction and working of an N-Channel depletion MOSFET. Also give static and transfer characteristics of depletion MOSFET. 6+2+2

EITHER

2. (A) Give construction and working of a Unijunction Transistor (UJT). Explain the chacteristics of UJT with its diagram. 5+5

OR

(B) Explain the construction and working of SCR. Explain the characteristics of SCR. Explain the construction and working of DIAC. 4+2+4

EITHER

3. (A) Explain the transistors hybrid equivalent circuits in CE mode. Give the analysis of CE amplifier using h-parameter. 5+5

OR

(B) Give classification of Amplifiers on the basis of modes of operation. Explain Class A, Class AB and Class C operations. 4+6

EITHER

4. (A) Give construction and working of a class A power Amplifier. Explain output characteristics of class A power Amplifiers and calculate the efficiency in percentage. 3+2+5

OR

(B) What is a class B push pull power Amplifier ? Explain the construction and output characteristics of class B push pull power Amplifier. Calculate the efficiency of push pull power amplifiers. 5+2+3

5. Solve any **TEN** :

(A) Give any two applications of JFET.

(B) Draw the symbol of p-channel E-MOSFET.

(C) Why FET is an Unipolar device ?

(D) Draw the V-I characteristics of TRIAC.

(E) Draw the circuit for UJT as relaxation oscillator.

(F) State the application of SCR.

(G) Define hybrid parameters.

(H) What is voltage gain ?

(I) What is the small signal amplifier ?

(J) List the Advantages of class A power amplifier.

(K) What is a Crossover distortion ?

(L) Draw the circuit diagram of complementary symmetry class B push pull amplifier. 1×10=10