

ECE

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)
B. Tech. Sem - I Electronics & Communication : WINTER- 2022
SUBJECT : ELECTRONIC COMPONENT & DEVICES

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 13-01-2023

W-24085-2022

Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Use of non – programmable **CALCULATOR** is allowed.
 - 4) Assume suitable data **WHEREVER** necessary.
 - 5) Draw neat labelled diagram **WHEREVER** necessary.
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Q.1 Describe the construction of following variable resistors with the help of (10) diagram,
i) Potentiometer
ii) Rheostat

OR

Q.1 Describe construction of Air-core Inductor, Iron-core Inductor and ferrite-core Inductor with applications. (10)

Q.2 With the help of circuit diagram, explain the construction and working of Half wave rectifier with input and output waveforms. List the disadvantages of Half wave rectifier. (10)

OR

Q.2 Draw and describe the working of positive and negative clampers with the help of output waveforms. (10)

Q.3 Draw and explain Input and output characteristics of transistor connected in Common Base Configuration. Also define α factor of CB configuration. (10)

OR

Q.3 Describe the operation of PNP transistor in Active region with diagram. State the function of emitter, base and collector in transistor. (10)

Q.4 a) Draw and explain Thermal runaway process in Transistor with suitable diagram. (06)

b) Describe requirements of biasing circuits. (04)

OR

Q.4 Draw the fixed bias circuit and state the equations for co-ordinates of operating point (I_c and V_{CE}). Define the stability factor for fixed bias circuit (10)

Q.5 Draw and describe construction and working of N-channel depletion type MOSFET with Drain and Transfer characteristic graph. (10)

OR

Q.5 Describe following parameters of JFET, (10)
i) Drain resistance
ii) Transconductance
iii) Amplification factor

Q.6 Describe the construction and working of Light emitting Diode (LED). List the applications of LED. (10)

OR

Q.6 Draw and explain construction and working of opto-coupler in detail. State the effect of increase in input voltage on the output resistance. (10)

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