

**B.TECH SEM - III (2007 COURSE) (E & TC ENGG.) : SUMMER
- 2018**

SUBJECT : ELECTRONICS DEVICES

Day : **Friday**

Time : **02.30 PM TO 05.30 PM**

Date : **25/05/2018**

S-2018-2599

Max. Marks : 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining attempt **ANY TWO** questions from each section.
 - 2) Answers to both the section should be written in **SEPARATE** answer books.
 - 3) Draw neat and labeled diagram **WHEREVER** necessary.
 - 4) Use of non-programmable **CALCULATOR** is allowed.
 - 5) Figures to the right indicate **FULL** marks.
 - 6) Assume suitable data if necessary.
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SECTION – I

- Q.1** a) Why is colour coding used in resistors? Briefly explain its significance. [05]
b) Write the peculiarities of a Tunnel Diode with respect to: [05]
i) Symbol ii) Characteristics iii) Tunneling effect
c) Define α , β and γ of a transistor. Show how they are related to each other. [04]
- Q.2** a) Explain the mechanism of current conductivity by drift and diffusion in semiconductor. [07]
b) Explain different types of fixed capacitor. [06]
- Q.3** a) With neat diagram and waveforms explain the operation of full wave voltage doublers. [07]
b) Explain in details Voltage Quadruple. [06]
- Q.4** a) Draw the circuit diagram of a self bias circuit using CE configuration and explain how it stabilizes operating point. [07]
b) Compare different biasing circuit in terms of stability factors. [06]

SECTION – II

- Q.5** a) Explain the fabrication process of single sided PCB. [05]
b) Explain the use of MOSFET in VLSI device. [05]
c) Explain different types of biasing in FET. [04]
- Q.6** a) Draw the drain characteristics of depletion type MOSFET. Explain different operating regions in the characteristics with proper reasoning. [07]
b) Compare JFET and MOSFET. [06]
- Q.7** a) Determine I_{DSS} given $I_D = 3\text{mA}$, $V_{GS} = -2\text{V}$ and $V_{GS}(\text{OFF}) = -10\text{V}$. [07]
b) Explain E-MOSFET characteristics and its parameter. [06]
- Q.8** a) Explain human ear response to audio frequencies. [07]
b) Give types of PCM and its design rules. [06]

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