B.TECH SEM - III (2007 COURSE) (ELECTRICAL ENGG.) : SUMMER - 2018

SUBJECT : ELECTRONICS DEVICES AND CIRCUITS

Day: **Wednesday** Time: **02.30 PM TO 05.30 PM**
Date: **23/05/2018** **S-2018-2573** 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) Figures to the **RIGHT** indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.
4) Use of non programmable **calculator** is allowed.
5) Assume suitable data if **necessary**.
6) Draw neat diagrams wherever necessary.

SECTION - I

Q.1 **a)** What is biasing of transistor? Draw circuit diagram of voltage divider bias and write down equation for selection of operating point. **(06)**

b) Write down equation for current gain in CE and CB configuration. State relationship between them. **(04)**

c) Draw symbol of opto-coupler and state applications of it. **(04)**

Q.2 **a)** Draw circuit diagram of two stage RC coupled amplifier. State the effect of cascading on gain and band width of amplifier. **(07)**

b) Draw circuit diagram to plot characteristics of NPN transistor in common base configuration. Show range of instruments used. Draw output characteristics and show all regions on it. **(06)**

Q.3 **a)** Compare class A, class B, class C power amplifiers. **(05)**

b) Draw schematic diagram of different types of feedback in amplifiers and write the equation for gain with feedback in all types of amplifiers. **(08)**

Q.4 **a)** Draw diagram and describe construction, principle of operation and characteristics of DIAC. State its applications. **(07)**

b) Compare LED and LCD and state specifications and applications of it. **(06)**

SECTION - II

Q.5 **a)** Why are NAND and NOR gates called as universal gates? Explain. **(04)**

b) What is the difference between asynchronous and synchronous counter? Explain with block diagram. **(05)**

c) Write a note on fixed positive voltage regulator IC 78XX series. **(05)**

Q.6 **a)** Explain working of 4 bit adder with neat block diagram. **(07)**

b) Convert SR flip-flop to JK flip-flop. **(06)**

Q.7 **a)** Explain the operation of RAM, NVRAM, SRAM and DRAM. **(07)**

b) Design MOD-10 counter using IC 7490 **(06)**

Q.8 Draw a Dual tracking Regulated power supply with specifications to deliver 5V to 10V voltage and 1A current. **(13)**

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