(DME 324)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Third Year)

MECHANICAL ENGINEERING

Paper - IV : Basic Electronics and Microprocessors

Time : 3 Hours

1)

a)

b)

Maximum Marks: 75

Answer question No.1 compulsory	(15)
Answer ONE question from each unit	(4 × 15 = 60)
Draw the circuit diagram of a Diode connected in forward bias.	
Draw the output characteristics of Transistor.	

- c) What is meant by feed back?
- d) Draw the symbols of JFET, MOSFET.
- e) Convert $(7F)_{16}$ to Decimal and Octal?
- f) Write Demorgans Theorems.
- g) Realize a three input NAND gate using basic gates.
- h) Write Flags in 8085 Microprocessor?
- i) What is Microprocessor?

<u>UNIT - I</u>

- 2) a) Discuss PN diode V-I characteristics with neat sketch.
 - b) Explain about formation of PN junction.

OR

- 3) a) With circuit and necessary wave forms explain the operation of HWR.
 - b) Explain the comparison between BJT and FET.

<u>UNIT - II</u>

- *4)* a) Discuss the electrical characteristics of an OP-amp in details.
 - b) Compare and contrast an ideal OP-amp and practical OP-amp.

OR

- 5) a) Draw and explain colpits oscillators.
 - b) Discuss about condition for oscillations.

<u>UNIT - III</u>

- a) Express the following function in sum of min terms and product of max terms F(A,B,C,D)=B'D+A'D+BD.
 - b) Realize half adder using 2-i/p NAND gates.

OR

- 7) a) Realize an SR latch using.i) NOR gates ii) NAND gates
 - b) Convert D-Flip Flop to T-Flip Flop.

UNIT - IV

- 8) a) Draw the internal architecture of 8085 and explain.
 - b) List the features of 8085 Microprocessor.

OR

- 9) a) Explain Instruction set of 8085.
 - b) Write a program to add N-8-bit numbers.

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