Total No. of Questions : 8]

SEAT No. : ____

P6490

[Total No. of Pages : 2

[5868]-106
F.E.
BASIC ELECTRONICS ENGINEERING
(2019 Pattern) (Semester - I & II) (104010)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Convert **[6]**

i) $(2BA.OC)_{16}$ to Octal.

ii) $(462.27)_{8}$ to Hexadecimal

b) Why NAND and NOR are known as universal logic gates? **[6]**

c) Draw and explain block diagram of microprocessor. **[5]**

OR

Q2) a) Perform the following arithmatic operations. **[5]**

i) (110011 – 111001) using 2's compliment method.

ii) (111011.11 + 100100.01)

b) State and prove Demorgon's Theorems. **[6]**

c) Draw and explain block diagram of microcontroller. **[6]**

Q3) a) Explain principle of operation and block diagram Digital Multimeter. **[6]**

b) Explain working of Auto-Transformer List its applications. **[6]**

c) Explain operation of DC Ammeter with suitable diagram. Explain circuit or multi-range Ammeter. **[6]**

OR

Q4) a) Draw block diagram of function generator and explain functions of each block. **[6]**

b) Explain Digital storage oscilloscope. List its applications. **[6]**

c) Explain operation of DC voltmeter with suitable diagram. Explain circuit of multi-range voltmeter. **[6]**

P.T.O.

Q5) a) Draw construction of LVDT and explain its operation. Write its advantages, disadvantages and applications. **[6]**

b) Explain RTD with its construction, working, advantages, disadvantages and applications. **[6]**

c) Explain operation of Bio-sensor with one application. **[5]**

OR

Q6) a) What are different types of transducers? Give one example of each type. **[5]**

b) Explain working principle of strain guage. Explain load cell. **[6]**

c) Explain Thermocouple with its construction, working, advantages, disadvantages and applications. **[6]**

Q7) a) Explain different types of cables used in electronic communication. **[6]**

b) Draw and explain block diagram of FM transmitter. **[6]**

c) Draw and explain block diagram of GSM. **[6]**

OR

Q8) a) With the help of block diagram, explain operation of communication system. **[6]**

b) Explain IEEE electromagnetic frequency spectrum and state allotment of frequency bands for different applications. **[6]**

c) Explain block diagram of AM transmitter (High Power). **[6]**

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