

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 arithmetic operations. [5]
- i) $(110011 - 111001)$ using 2's compliment method.
 - ii) $(111011.11 + 100100.01)$
- b) State and prove Demorgan'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 gauge. 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]

