

Total No. of Questions : 8]

SEAT No. :

PE900

[Total No. of Pages : 2

[6581]-1906

F.E.

BASIC ELECTRONICS ENGINEERING

(2019 Pattern) (Semester - I/II) (104010) (Credit System) (Theory)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of Calculator is allowed.
- 5) Assume Suitable data if necessary.

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

- i) $(462.27)_{10} = ()_{16}$
- ii) $(5F1.6C)_{16} = ()_{10}$
- iii) $(110011-111001)$ using 2s complement method.

b) Define universal logic Gates. Draw basic gates using universal logic Gates? **[6]**

c) Draw & explain Block Diagram of Micro-controller. **[6]**

OR

Q2) a) With the help of Truth Table explain operation of AND, OR, EX-OR gates **[6]**

b) State & Prove De-Morgan's theorems. **[6]**

c) Design & implement full adder. Write equation for sum & carry. **[6]**

Q3) a) Explain principle of operation & block diagram of Digital Multi-meter. **[6]**

b) Explain working of Auto transformer. List its Applications. **[6]**

c) Explain operation of DC Ammeter with suitable diagram. Explain circuit of multi-range Ammeter. **[5]**

OR

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

b) Draw & explain block diagram of DSO. List its applications. **[6]**

c) Explain operation of DC Voltmeter with suitable diagram. Explain circuit of multi-range Voltmeter. **[5]**

P.T.O.

- Q5)** a) Differentiate between active & passive sensors. [5]
b) Explain RTD with its Construction, Working advantages, Disadvantage, applications. [6]
c) Explain operation of Bio-Sensor with one application. [6]

OR

- Q6)** a) What are the different types of transducers. Give one example of each type. [5]
b) Explain working principle of strain gauge. Explain load cell. [6]
c) Draw construction of LVDT & explain its operation with advantages, disadvantages, applications. [6]

- Q7)** a) Explain different types used in cables, used in electronic communication. [6]
b) Draw & Explain block diagram of FM transmitter. [6]
c) Draw & Explain block diagram of GSM. [6]

OR

- Q8)** a) With the help of block diagram explain operation of communication system. [6]
b) Draw & explain IEEE electromagnetic frequency spectrum & state allotment of frequency bands for different applications. [6]
c) Draw & Explain block diagram of AM transmitter?(High power) [6]

