Total No. of Questions : 8]

SEAT No. :

PD4029

[Total No. of Pages : 2

[6401]-1906

F.E.

BASIC ELECTRONICS ENGINEERING

(2019 Pattern) (Credit System) (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) ***Assume suitable data, if necessary.***

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

i) $(10100.1011)_2$ to Decimal

ii) $(832.24)_{10}$ to Hexadecimal

iii) $(556.27)_8$ to Hexadecimal

iv) $(2C6.1B)_{16}$ to Octal

v) $(D43A.03)_{16}$ to Decimal

b) Define Universal Logic Gates. Why they known as Universal Logic Gates? **[6]**

c) Compare Microprocessor and Microcontroller. **[6]**

OR

Q2) a) State and prove De-Morgan's Theorems. **[6]**

b) Explain in detail the working of a full adder with the help of a truth table, logic equations and diagram. **[6]**

c) Explain different types of flip-flops and state one application of each. **[6]**

Q3) a) Explain Digital Multimeter with block diagram. **[6]**

b) Explain Digital Storage Oscilloscope with block diagram. **[6]**

c) Explain Auto Transformer and list its applications. **[5]**

OR

P.T.O.

Q4) a) Explain Function Generator with block diagram. **[6]**

b) Explain working of DC Power Supply with block diagram and waveforms. **[6]**

c) Explain how to convert Galvanometer to Analog Ammeter and how to use it as multi-range Ammeter? **[5]**

Q5) a) With the help of diagram, explain operation of LVDT. Write its advantages, disadvantages and applications. **[6]**

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

c) Explain working principle of strain gauge. Explain load cell. **[5]**

OR

Q6) a) Explain selection criteria of transducers. **[6]**

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

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

Q7) a) With the help of block diagram, explain basic communication system. **[6]**

b) Draw Block Diagram of AM Transmitter and explain. **[6]**

c) Draw diagram explain GSM architecture. **[6]**

OR

Q8) a) Explain need of modulation. What are the different techniques of modulation. **[6]**

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

c) Explain cellular communication system. **[6]**