

Total No. of Questions : 8]

SEAT No. :

P3922

[Total No. of Pages : 2

[60011-4006

F.E.

**BASIC ELECTRONICS ENGINEERING
(2019 Pattern) (Semester - II) (104010)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6, Q.No.7 or Q.No.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) i) Convert:

- 1) $(372.26)_8$ to Hexadecimal
- 2) $(5F1.6C)_{16}$ to Octal
- 3) $(9D.33)_{16}$ to Decimal

ii) Solve:

- 1) $(110011-111001)$ using 2s compliment method
- 2) (1101×110)
- 3) $(111011.11+100100.01)$

[6]

b) Define Universal Logic Gates. Why they known as Universal Logic Gates?

[6]

c) Draw block diagram of Microprocessor and explain function of each block.

[6]

OR

Q2) a) With the help of truth table, explain operation of AND, OR, EX-OR gates.

[6]

b) State and prove De-Morgan's Theorems.

[6]

c) Explain in detail the working of a full adder with the help of a truth table and give its sum and carry.

[6]

P.T.O.

- Q3)** a) Explain digital multimeter with block diagram. [6]
b) Explain Power Scope with block diagram. [5]
c) Explain how to convert Galvanometer to Analog Voltmeter and how to use it as multi-range Voltmeter? [6]

OR

- Q4)** a) Explain function Generator with block diagram. [6]
b) Explain Auto Transformer and list its applications. [5]
c) Explain how to convert Galvanometer to Analog Ammeter and how to use it as multi-range Ammeter? [6]

- Q5)** a) Explain selection criteria of transducers. [6]
b) Draw construction of LVDT and explain its operation. Write its advantages, disadvantages and applications. [6]
c) Explain working principle of strain gauge. Explain load cell. [5]

OR

- Q6)** a) Differentiate between active and passive sensors. [6]
b) Explain RTD with its construction, working, advantages, disadvantages and applications. [6]
c) Explain operation of Biosensor with one application. [5]

- Q7)** a) With the help of block diagram, explain basic communication system. [6]
b) Explain IEEE electromagnetic frequency spectrum and state allotment of frequency bands for different applications. [6]
c) Draw diagram explain GSM architecture. [6]

OR

- Q8)** a) Explain different types of cables used in electronic communication. [6]
b) Draw block diagram of FM Transmitter and explain. [6]
c) Explain cellular communication system. [6]
