

Total No. of Questions : 8]

P4936

SEAT No. :

[Total No. of Pages : 2

[5667]-1006

F.E. (Semester - I)

BASIC ELECTRONICS ENGINEERING

(2019 Pattern)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Neat diagrams must be drawn wherever necessary.
- 2) Figures to the right indicate full marks.
- 3) Assume suitable data, if necessary.

Q1) a) State and prove De Morgan's sum & product theorem with the help of truth table. [6]

b) Design and implement full adder circuit. Write the expressions for sum and carry. [6]

c) i) Convert $(105.15)_{10}$ to binary

ii) Convert $(4057.068)_{10}$ to decimal

iii) Convert $(1101101101001101)_2$ to hexadecimal

iv) Find 1's complement of 11001

v) Find $(11100-0111)_2$ using two's complement.

OR

Q2) a) What is flipflop? Draw & Explain the working of clocked SR Flip flop. [6]

b) Compare microprocessor and microcontroller. [6]

c) Design and Implement half adder circuit. [5]

Q3) a) Draw and Explain the block diagram of digital multimeter. [6]

b) Explain the block diagram of AC/DC power supply. [6]

c) Explain the working of function generator with neat diagram. [6]

OR

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Q4) a) Draw and explain the block diagram of digital storage oscilloscope. [6]

b) Explain DC ammeter. Explain, how the range of DC ammeter can be extended. Determine expression for shunt resistance. [6]

c) Explain construction and working of an autotransformer. [6]

Q5) a) Explain the construction and working of LVDT. [6]

b) Write a short note on two temperature transducers / sensors. [6]

c) Explain the construction and working of load cell. Give one application. [5]

OR

Q6) a) Explain the working of biosensors with the help of neat block diagram Give one application. [6]

b) Draw and explain the working of accelerometer. [6]

c) An RTD is inserted in an oven having a resistance 160Ω . At 0°C resistance is 100Ω and its resistance temperature coefficient is 0.00392 . Determine the change in temperature. [5]

Q7) a) Explain the block diagram of electronic communication system. [6]

b) Distinguish between co-axial cable and optical fiber cable. [6]

c) Describe the block diagram of AM-transmitter. [6]

OR

Q8) a) Draw and explain electromagnetic spectrum along with their applications. [6]

b) Draw and explain the block diagram of FM receiver. [6]

c) Diagrammatically explain GSM architecture. [6]

[5667]-1006

2