Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5056]-15

F.E. EXAMINATION, 2016

BASIC ELECTRONICS ENGINEERING

(2015 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Figures to the right indicate full marks.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Use of electronic pocket calculator is allowed.

(*iv*) Assume suitable data, if necessary.

1. (*a*) Draw and explain the V-I characteristics of a Zener diode. What are the two breakdown mechanisms in a Zener diode ? [6]

(*b*) What do you understand by a D.C. load line and Q point ? Explain their significance. [6]

Or

2. (*a*) For a bridge rectifier, the RMS secondary voltage of transformer is 12.7 V. Assume ideal diodes and R_L = 1 KΩ. [6]

Find :

(*i*) Peak Current

(*ii*) DC load current

(*iii*) DC load voltage

(*iv*) RMS current

(*v*) Peak Inverse Voltage of diode

(*vi*) RMS Voltage across load.

(*b*) Compare BJT and MOSFET. [6]

P.T.O.

3. (*a*) Define and give typical values of the following op-amp parameters : [6]

(*i*) Voltage Gain

(*ii*) CMRR

(*iii*) Slew Rate.

(*b*) What is meant by Universal Gate ? By using any universal gate draw AND, OR, NOT basic gates. [5]

(*c*) What do you mean by counter ? State different types of counters. [2]

Or

4. (*a*) Draw a circuit diagram of an Op-Amp as an integrator and derive the expression for its output voltage. [6]

(*b*) What is multiplexer ? Explain one with example. Write its relation between select lines and input lines. [7]

5. (*a*) Draw block diagram of Electronic Weighing Machine and explain its operation. [6]

(*b*) Explain the construction and characteristics of SCR. [6]

Or

6. (*a*) Explain the construction and working of LVDT with neat diagram. [6]

(*b*) Compare the three types of Temperature Transducers. [6]

7. (*a*) What is need of modulation ? Explain Amplitude Modulation in detail. [7]

(*b*) Draw and explain block diagram of GSM system. [6]

Or

8. (*a*) Draw and explain electromagnetic spectrum. [5]

(*b*) Explain the following things about FM : [8]

(*i*) Deviation ratio

(*ii*) Mathematical representation of FM

(*iii*) Advantages and Disadvantages

(*iv*) Modulation index.