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

<table>
<tr><td>**Seat No.**</td><td></td></tr>
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[5667]-106

F.E. EXAMINATION, 2019

BASIC ELECTRONICS ENGINEERING

(2015 PATTERN)

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

N.B. :— (*i*) Attempt Q. **1** *or* Q. **2**, Q. **3** *or* Q. **4**, Q. **5** *or* Q. **6** and Q. **7** *or* Q. **8**.

(*ii*) Figures to the right indicate full marks.

(*iii*) Neat diagram must draw wherever necessary.

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

1. (*a*) Draw and explain the working of Bridge rectifier with capacitor filter. Draw i/p and o/p waveforms. [6]

(*b*) Draw and explain the construction and working of N-Channel Enhancement MOSFET. [6]

Or

2. (*a*) For the given circuit diagram Fig. 1, if V_z = 12 V, $I_{z\,min}$ = 1 mA, $I_{z\,max}$ = 50 mA. Calculate minimum and maximum value I_L and R_L for which zener diode maintain its regulation.

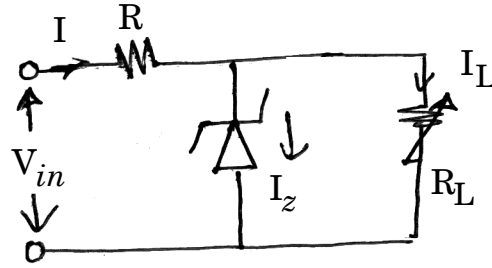P.T.O.

(Assume V_{in} = 24 V, R = 200 Ω) [6]

Fig. 1

(b) Compare BJT in CE, CB and CC configuration. [6]

3. (a) Define the following parameters of op-amp : [6]

   (1) Slew Rate

   (2) PSRR

   (3) CMRR.

   Give the ideal and practical values of IC741 op-amp.

   (b) Classify logic gates. Write the IC number, expression and truth table for each gate. [6]

Or

4. (a) Explain with circuit diagram how op-amp can be used as integrator. [6]

   (b) Compare microprocessor with microcontroller. [6]

5. (a) Write short note on selection crietria of transducer. [6]

   (b) Draw and explain the block diagram of weighing machine mention applications. [7]

6. (*a*) Draw the constructional diagram of TRIAC. Explain its operation with characteristics. [7]

(*b*) List the different types of temperature sensor and explain any *one* in detail. [6]

7. (*a*) Compare : Twisted pair cable, coaxial cable and fiber optic cable. [6]

(*b*) Define Modulation. Compare AM and FM. [7]

Or

8. (*a*) Draw and explain the block diagram of GSM. [7]

(*b*) Write a short note on IEEE frequency spectrum. [6]