

Seat No.

[5667]-106

F.E. EXAMINATION, 2019

BASIC ELECTRONICS ENGINEERING

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :- 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 $V_z = 12\text{ V}$, $I_{z\text{ min}} = 1\text{ mA}$, $I_{z\text{ max}} = 50\text{ mA}$. Calculate minimum and maximum value I_L and R_L for which zener diode maintain its regulation.

P.T.O.

(Assume $V_{in} = 24\text{ V}$, $R = 200\ \Omega$)

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 criteria of transducer. [6]

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

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- Or
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]