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

Seat
No.

[5151]-107

F.E. EXAMINATION, 2017

BASIC ELECTRONICS ENGINEERING

(2015 PATTERN)

Time : Two Hours   Maximum Marks : 50

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

(ii) Neat diagrams should be drawn wherever necessary.

(iii) Use of electronic pocket calculator is allowed.

(iv) Assume suitable data, if necessary.

1. (a) Draw the construction diagram and explain working of LED. [6]

(b) Explain with a neat circuit diagram, function of each component in single stage CE amplifier. [6]

Or

2. (a) In a centre tapped FWR, the rms half secondary voltage is 10V. Assuming ideal diodes and load resistance of $2\,k\Omega$, find : DC load current, ripple factor and efficiency of rectification. [6]

(b) Draw and explain drain and transfer characteristics of enhancement type P-channel MOSFET. [6]

3. (a) Define Op-Amp. Draw and explain the functional block diagram of an Op-Amp. [6]

(b) Write law of commutation, law of association and law of distribution for AND and OR logic function. [6]

P.T.O.

4. (*a*) Calculate output voltage 'V$_O$' of Op-Amp circuit shown in figure Draw I/P and O/P waveforms. [6]
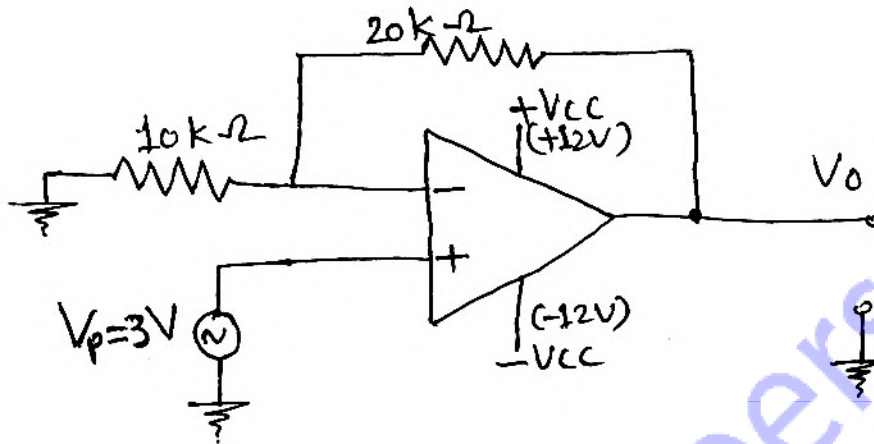
(*b*) Draw and explain the block diagram of microprocessor. [6]

5. (*a*) Draw construction of DIAC and explain working with V-I characteristics. [6]

(*b*) What is electronic weighing machine ? With the help of neat block diagram explain its working. [7]

6. (*a*) Define transducer. What are the selection criteria for a good transducer ? [7]

(*b*) Draw and explain the block diagram of basic instrumentation system. [6]

7. (*a*) What is electronic communication system ? Explain the elements of communication system with the help of neat block diagram. [7]

(*b*) Explain different types of cables used in communication system with neat diagrams. [6]

Or

8. (*a*) Draw neat block diagram of GSM system and explain its working. [6]

(*b*) Define modulation index with reference to AM and FM. Write equations of modulation index. Draw AM waveform for 100% modulation case. [7]