

(b) Draw the block diagram of CRO and explain the function of each block in detail. 10

SEC

- D

8. What is LED ? Discuss its principle, construction, working, advantages and disadvantages. Also make comparison between LED and LCD. 20

9. (a) Make a comparison between dynamic scattering and field effect LC displays. 10

(b) Write short note on seven segment display. 10

Roll No.

24004

**B. Tech. 2nd Semester
(Common for all Branches)
Examination – May, 2017**

BASICS OF ELECTRONICS

Paper : ECE-101-F

Time : Three Hours] [Maximum Marks : 100
Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) What is an ideal diode ? 2
(b) Give definition of forbidden energy gap and knee voltage. 4
(c) Define common mode rejection ratio. 3

- (d) What is the difference between amplifier and oscillator 2
- (e) Discuss the clock of S-R flip-flop. 2
- (f) Write about basic logic gates. 3
- (g) Why LED emit light of different colours. 2
- (h) Define dot matrix display. 2

SECTION - A

2. (a) What is PN junction diode? Draw and explain its terminal characteristics. 10
- (b) Make a comparison between the following : 10
- (i) Intrinsic and extrinsic semiconductors.
- (ii) Drift and diffusion currents.
3. (a) Draw the circuit of an R-C coupled amplifier. Draw its gain frequency characteristics and indicate cut-off frequency and bandwidth. 10
- (b) An amplifier with negative feedback provides an output voltage of 5 V with an input voltage of 0.2 V. On removal of feedback, it needs only 0.1 V input to give the same output. Determine : 2
- (i) Gain with feedback.

- (ii) Gain with feedback.
- (iii) Feedback ratio. 10

SECTION - B

4. (a) Describe the principle of operation of a Wein bridge oscillator and give the condition for sustained oscillation. 10
- (b) Explain use of Op-Amp as a summing, scaling, and average amplifier. 10
5. (a) Draw the pin diagram of IC 741 used as an Op-Amp and explain the function of each pin. 10
- (b) Write a short notes on voltage regulator. 10

SECTION - C

6. (a) Realize EX-OR gate using four NAND gates only. 10
- (b) Draw and explain the circuit diagram of J-K flip-flop. Give its truth table also. 10
7. (a) Make a comparison between combinational and sequential circuits. 10