

Total No. of Questions—6]

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[4756]-25

F.E. (Second Semester) EXAMINATION, 2015

BASIC ELECTRONICS ENGINEERING

(2008 Pattern)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Solve Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6.

(ii) Figures to the right indicate full marks.

(iii) Neat diagrams must be drawn wherever necessary.

(iv) Assume suitable data, if necessary.

1. (a) Explain the regulating mechanism in case of Zener regulator with variation in supply voltage and load is constant. [7]

(b) Discuss the effect of the following capacitors on frequency response of amplifier : [6]

(i) Coupling capacitor

(ii) Bypass capacitor

(iii) Diffusion and Transition capacitor.

P.T.O.

(c) Give and explain any *four* specifications of SCR. [4]

Or

2. (a) What is d.c. load line ? Derive its equation for C.E. amplifier and explain the factors affecting the stability of d.c. load line. [7]

(b) For the transistor circuit shown, in Fig. 1. :

(i) What is V_{CE} when $V_{in} = 0$

(ii) What minimum values of I_B is required to saturate this transistor if $B_{dc} = 200$, neglect $V_{CE} (sat)$. [6]

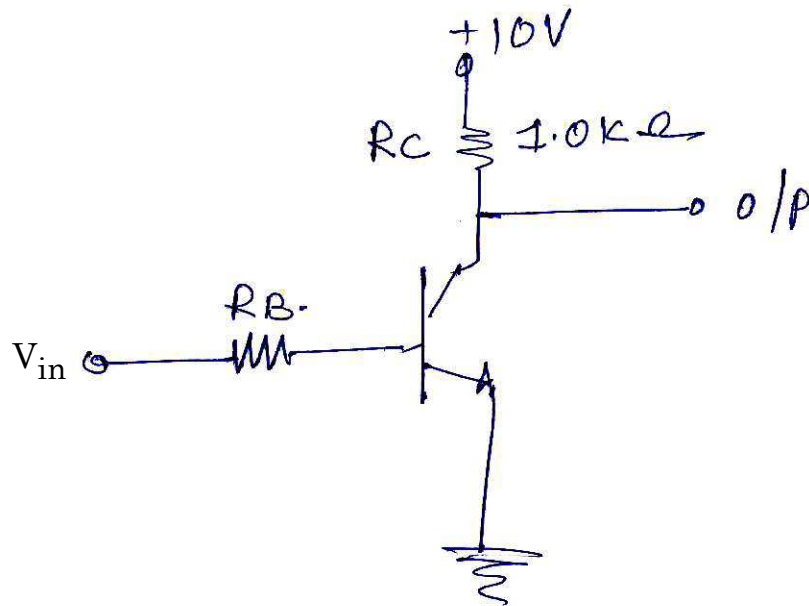


Fig. 1

(c) Write the peak inverse voltage of the diode in the following circuits : [4]

(i) Half wave rectifier without filter

(ii) Half wave rectifier with capacitor filter

(iii) Full wave rectifier

(iv) Bridge rectifier.

3. (a) Explain the following terms : [6]

(i) Input offset voltage

(ii) Slew rate

(iii) CMRR

(iv) Bandwidth.

(b) Draw and explain 8 : 1 mux using 4 : 1 mux. [7]

(c) What is shift register ? Give its operating modes. [4]

Or

4. (a) Draw and explain practical differentiator using Op-Amp. [7]

- (b) Determine the gain of the amplifier shown in Fig. 2, if the open loop voltage gain is 1,00,000. [6]

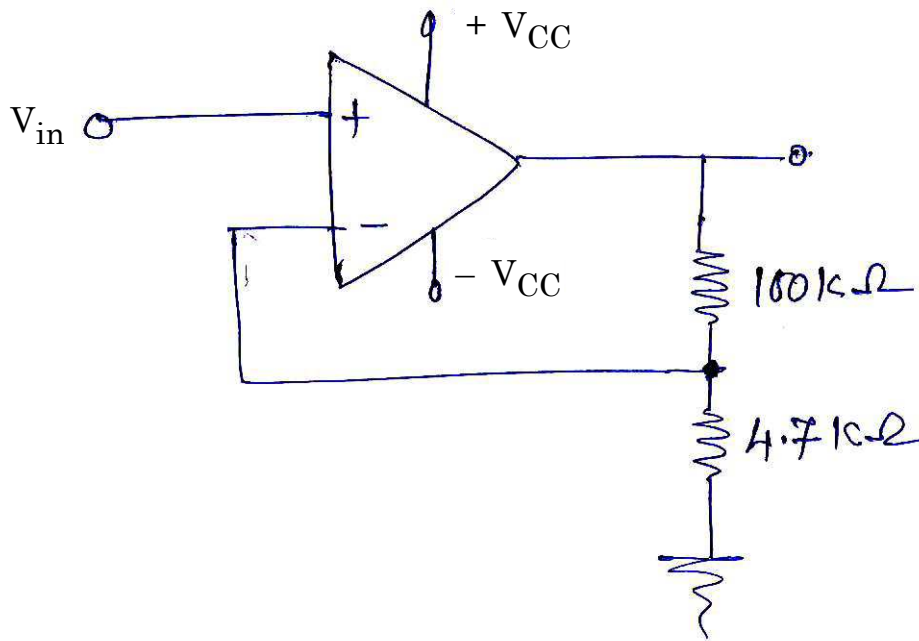


Fig. 2

- (c) State and prove DeMorgan's theorem. [4]
5. (a) With neat diagram explain construction and working of LVDT. [8]
- (b) Modulation reduces the antenna height, justify with suitable example. [4]

(c) Write a short note on any *one* :

(i) Thermocouple

(ii) Electronic weighing machine. [4]

Or

6. (a) Draw and explain the block diagram of FM transmitter. [8]

(b) Discuss the cell splitting technique in cellular network. [4]

(c) Write a short note on any *one* :

(i) PLC

(ii) Alarm Annunciator. [4]