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**[4756]-103**

**F.E. (First Semester) EXAMINATION, 2015**

**BASIC ELECTRONICS ENGINEERING**

**(2012 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

- N.B. :-**
- (i) Figures to the right indicate full marks.
  - (ii) Neat diagrams must be drawn wherever necessary.
  - (iii) Use of electronic pocket calculator is allowed.
  - (iv) Assume suitable data, if necessary.

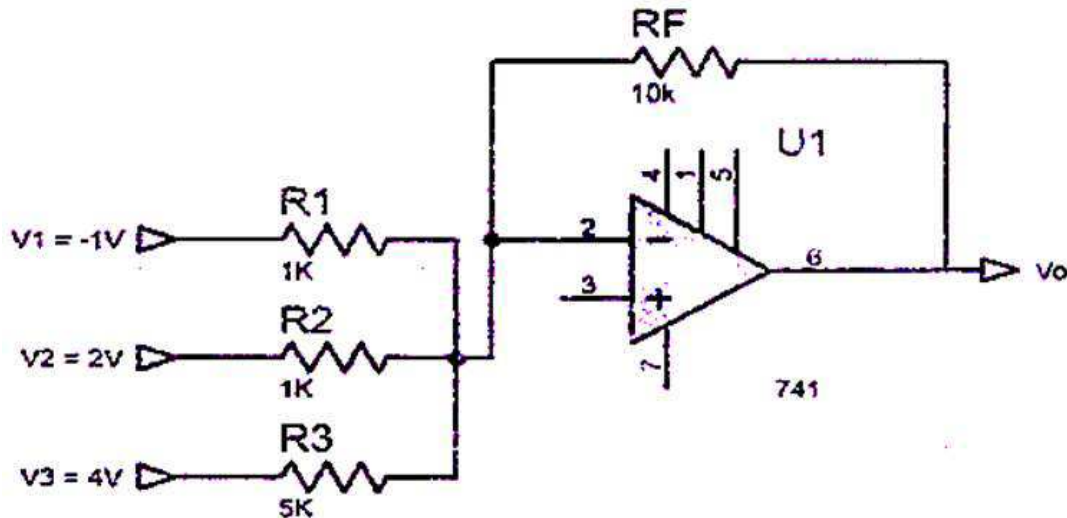
1. (a) Explain the working of positive clamper with its waveforms. [6]
- (b) What is dc load line ? Explain the role of Q-point on dc load line. [6]

*Or*

2. (a) Explain the working of positive biased shunt clipper with its input and output waveforms. [6]
- (b) Differentiate between CB, CE and CC configurations. [6]

P.T.O.

3. (a) In shown in the following Fig. let  $R_1 = R_2 = 1 \text{ k}\Omega$ ,  $R_3 = 5 \text{ k}\Omega$ ,  $R_f = 10 \text{ k}\Omega$ ,  $V_1 = -1\text{V}$ ,  $V_2 = 2\text{V}$  and  $V_3 = 4\text{V}$ . Calculate  $V_o$ . [6]



- (b) State the IC number for the following two input logic gate : [6]
- (i) AND
  - (ii) NAND
  - (iii) OR
  - (iv) NOR
  - (v) EX-OR
  - (vi) NOT.

*Or*

4. (a) Define the following parameters of op-amp : [6]
- (i) BW
  - (ii) PSRR
  - (iii) CMRR.

- (b) Draw the explain full adder using two half adder with its truth table. [6]
5. (a) With a neat diagram explain the construction and working of LVDT. Give its advantages, disadvantages and applications. [7]
- (b) Draw a neat block diagram of a digital thermometer and explain its operation. [6]

*Or*

6. (a) Write a short note on Selection criterion for transducers. [7]
- (b) Compare : [6]
- (i) SCR and TRIAC
- (ii) DIAC and TRIAC.
7. (a) Draw and explain the electromagnetic spectrum or IEEE frequency spectrum. List its applications. [7]
- (b) Compare : AM and FM. [6]

*Or*

8. (a) What is modulation ? Explain AM technique in detail and write AM expression. [7]
- (b) Explain the basic structure of mobile phone system. [6]