

Code: CS2T5, IT2T5

I B.Tech - II Semester – Regular Examinations – April 2016

**BASIC ELECTRONICS ENGINEERING**  
(Common for CSE & IT)

Duration: 3 hours

Max. Marks: 70

## PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1. a) What is the difference between drift current and diffusion current?
- b) Draw the symbol of photo diode and write the region of operation.
- c) What is the maximum PIV of half-wave rectifier when input  $v(t) = v_m \sin \omega t$  ?
- d) Define TUF.
- e) What are the applications of CB, CE and CC configurations of BJT?
- f) Write the relation between d.c. current gains of CB, CE and CC.
- g) Write the condition to operate BJT in active region.
- h) What is virtual ground in op-amp?
- i) From Fig: 1 shown below calculate output voltage.

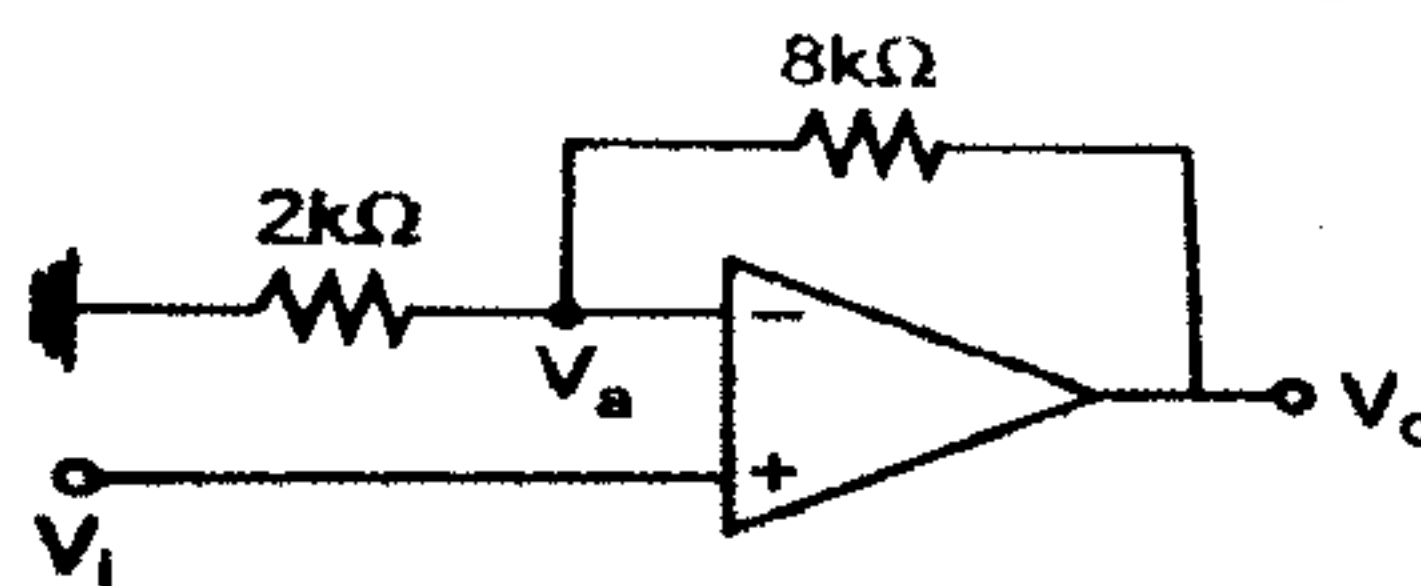


Fig: 1

- j) For ideal op-amp what is the value of slew rate, common mode gain and differential mode gain?
- k) What is the phase relation between input and output in differentiator and integrator?

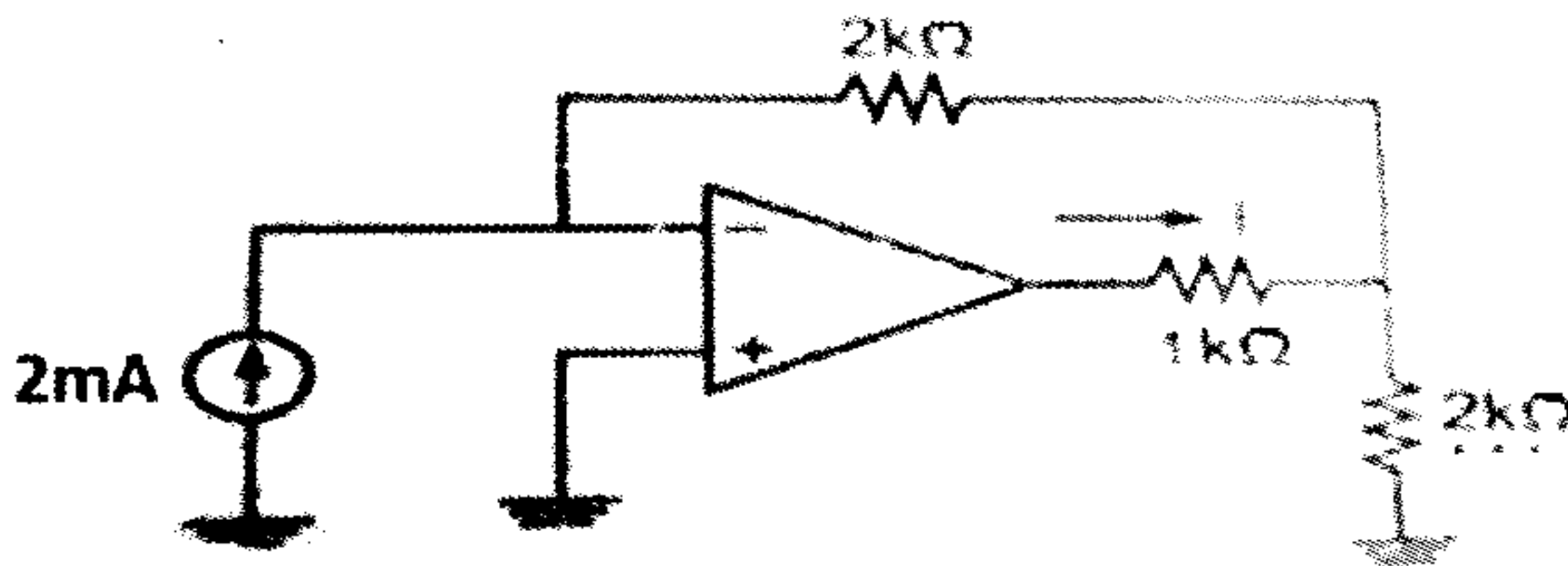
### PART – B

Answer any **THREE** questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) Explain the operation of LED with neat sketch. 8 M
- b) Explain the operation of P N junction diode in forward bias and reverse bias configuration. 8 M
3. a) Draw the diagram of full-wave rectifier with four diodes and explain the operation. 8 M
- b) Draw the basic block diagram of Regulated power supply and explain each block. 8 M
4. a) Explain the operation of transistor as an amplifier. 8 M
- b) Explain the difference between CB, CC configuration in BJT. 8 M
5. a) Draw the internal circuit diagram of op-amp and explain the operation. 8 M

b) Calculate the current  $I$  of the circuit shown in Fig: 2. 8 M



**Fig: 2**

6. a) Explain the operation of op-amp as non-inverting amplifier.

8 M

b) Explain the operation of op-amp as a Differentiator. Plot the input and output waveforms by considering square wave as input.

8 M