

Roll No .....

**CS-3002 (CBGS)****B.E., III Semester**

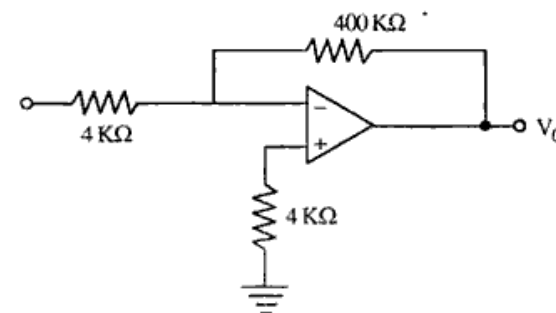
Examination, May 2018

**Choice Based Grading System (CBGS)****Electronic Devices and Circuits***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
 ii) All questions carry equal marks. rgpvonline.com

1. a) What is a Zener diode? Explain Zener breakdown and avalanche break down.  
 b) Write short notes on:
  - i) PIN diode
  - ii) Zener diode
2. a) Explain a feedback amplifier with the help of block diagram. Define negative and positive feedbacks.  
 b) Discuss the effect of negative feedback on amplifier characteristics.
3. a) What do you mean by a Switching circuit? Describe the Switching characteristics of a transistor.  
 b) What is a Bistable circuit? Discuss the operation of a transistor bistable multivibrator.
4. a) Describe the characteristics of an ideal Op-Amp with the help of schematic block diagram.  
 b) Write a note on the use of an Op-Amp as an integrator and a differentiator.

5. a) What is an Integrated circuit? Give the classification of ICs. What are the advantages and limitations of IC.  
 b) Explain how electronic circuit consisting of different components can be constructed in a monolithic IC?
6. a) What is a Schmitt trigger? What is meant by hysteresis in Schmitt trigger?  
 b) Show that the maximum collector efficiency of class A transformer coupled power amplifier is 50%.
7. a) Define the followings in a power amplifier:
  - i) Collector efficiency
  - ii) Distortion
  - iii) Power dissipation capability
 b) Determine the output voltage of an Op-Amp for input voltages of  $V_{i1} = 150 \mu\text{V}$ ,  $V_{i2} = 140 \mu\text{V}$ . The amplifier has a differential gain  $A_d = 5000$  and the value of  $\text{CMRR} = 200$ .
8. a) Draw and explain the static drain characteristic and the transfer characteristic curves for N-channel enhancement type MOSFET.  
 b) Calculate the total offset voltage for the circuit given below for an Op-Amp with specified values of input offset voltage  $V_{i0} = 5 \text{ mV}$  and input offset current  $= 100 \text{ nA}$ .



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