

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [BATCH 2016-19]

B.A./B.Sc. SECOND SEMESTER (January – June) 2017

Mid-Semester Examination, March 2017

Date : 16/03/2017

ELECTRONICS (General)

Time : 12 noon – 1 pm

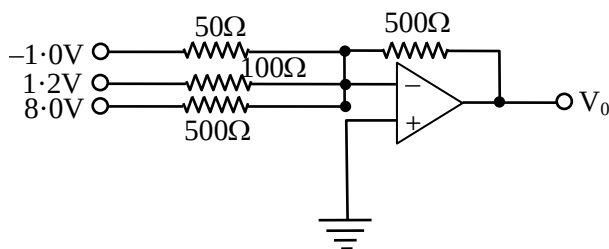
Paper : II

Full Marks : 25

Answer any five of the following questions :

[5×5]

1. State the principle of class AB amplifier with the help of a schematic diagram showing input and output waveforms. Mention the properties of a practical OPAMP. [3+2]
2. What do you mean by feedback amplifiers? Compare the characteristics of positive and negative feedback amplifiers. How is the offset null adjustment done of a practical OPAMP? [1+2+2]
3. Define and explain CMRR. Draw schematic diagrams for voltage sampling-series mixing and current sampling-shunt mixing feedback amplifiers. [3+2]
4. Explain the principle of operation of a Schmitt trigger. Derive an expression for hysteresis voltage for the Schmitt trigger. [2+3]
5. A feedback amplifier has an openloop voltage gain of -80 , with a feedback ratio of -0.05 . Obtain (i) the closed loop gain, (ii) the amount of feedback in decibel, (iii) the output voltage of the feedback amplifier for an input voltage of 40mV , (iv) the feedback factor and (v) the feedback voltage. [5]
6. Define 'virtual ground' in the context of OPAMP applications. Compare virtual ground with actual electrical ground. State advantages of negative feedback. [1+2+2]
7. Derive an expression showing relation between open loop gain and closed-loop gain of a feedback amplifier. Find the output voltage (V_o) for the given circuit in the following. [3+2]



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