Code No: 7076

FACULTY OF SCIENCE

B.Sc. (CBCS) III – Semester Examination, December 2017

Subject : ELECTRONICS

Paper – III
Analog Circuits

Time : 3 hours Max. Marks : 80

Part – A (5 X 4 = 20 Marks)

(Short Answer Type)

Answer any Five of the following questions.

1 Derive the expression for efficiency of a full wave rectifier.
2 Derive the expression for the ripple factor of L-section filter.
3 Explain the terms line regulation and load regulation.
4 Explain about 7805 and 7905 IC voltage regulators.
5 Discuss briefly the classification of amplifiers on the basis of operating conditions.
6 What is darlington pair? Give its merits and demerits.
7 What is an oscillator? Draw the circuit diagram of RC phase shift oscillator.
8 Draw the circuit diagram of an astable multivibrator.

Part – B (4 X 15 = 60 Marks)

(Essay Answer Type)

Answer ALL questions from the following :

9 a) Describe the operation of a half wave rectifier with the help of circuit diagram and relevant waveforms. Obtain the expression for i) rectifier efficiency ii) ripple factor iii) voltage regulation

OR

b) Explain how a series inductor filter gives a rectified output current. Derive the expression for voltage regulation and ripple factor when this filter is used.

10 a) Explain the working of series and shunt regulated power supply with neat circuit diagrams.

OR

b) Draw the circuit diagram of the switch mode power supply and explain its working.

11 a) Derive the expressions for current gain and input impedance of single stage common-emitter transistor amplifier using hybrid π model of transistor.

OR

b) Explain the principle of feedback. Discuss the effect of negative feedback on gain, input impedance and output impedance.

a) Explain the working of Colpitt's oscillator with the help of neat circuit diagram and derive the expression for its frequency of oscillation.

OR

b) What are the different types of multivibrators? With the help of circuit diagram explain the operation of a monostable multivibrator.

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