

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Winter 2018-19 Examination

Semester: 3
Subject Code: 11204202
Subject Name: Numerical Methods and Analog Electronics

Date: 25/10/2018
Time: 10:30am to 1:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**
 (a) Explain Tuned Primary Amplifier.
 (b) Explain Tuned Secondary FET Amplifier.
- Q.1. B) Answer the following questions (Any two) (04)**
 (a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)
 1. Explain the Pole-Zero Diagram.
 2. Explain Stagger Tuned Amplifier.
 (b) Explain Single Tuned Amplifier Root Locus. (04)
 (c) Explain Response to Pulse in details. (04)
- Q.2. A) Answer the following questions. (04)**
 (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
 1. Write a Short note on Active Filters.
 2. Explain Low Pass Filters.
 (b) Explain High Pass Filters. (04)
- Q.2. B) Answer the following questions (Any two) (03)**
 (a) Short note/ Multiple choice questions. (Each of 01 marks) (03)
 1. What do you mean by Voltage Regulator?
 2. What is the use of Low Pass Filter?
 3. Give Example of Voltage Regulator.
 (b) Explain IF Regulator using 723 (03)
 (c) Explain Low Voltage Regulator. (03)
- Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**
 (a) Explain Current Booster Transistor.
 (b) Explain Rung Kutta Method.
- Q.3. B) Answer the following questions (Any two) (04)**
 (a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)
 1. Classify Second Order Differential Equation.
 2. Write Elliptical Equations.
 (b) Explain Picard's Method. (04)
 (c) Explain Euler's Method. (04)
- Q.4. A) Answer the following questions. (04)**
 (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
 1. Write the equation of Taylor's series.
 2. Explain Modified Euler's Method.
 (b) Explain Numerical Solution of Laplace Equation (04)
- Q.4. B) Answer the following questions (Any two) (03)**
 (a) Short note/ Multiple choice questions. (Each of 01 marks) (03)
 1. Write hyperbolic equation.
 2. What is Fold back current?
 3. Write two dimensional Heat Equation.
 (b) Derive solution of Two dimensional Heat Equation. (03)
 (c) Derive the solution of Laplace Equations. (03)