AC-2965
First Year B. Sc. Examination
April / May – 2015
Electronics : Paper - II
(Network Analysis & Filter) (New Course)

Time : 2 Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.
Name of the Examination :
FIRST YEAR B. SC.
Name of the Subject :
ELECTRONICS : PAPER - 2 (NEW)
Subject Code No. : 2965
Seat No. :
Section No. (1, 2,.....): Nil

(2) All questions are compulsory.
(3) Assume data if necessary.

1 Answer briefly : 8
   A) What is initial value theorem in Laplace transform.
   B) Differentiate between resistance and reactance.
   C) Draw pass band, stop band of an ideal filter.
   D) What will be the power factor at resonance.

2 A) Find out the Laplace transform of 4th order integral. 8
   B) Find Laplace transform of
      1) \( \cos\omega t \)
      2) \( e^{-\alpha t} \).

   OR

2 A) Solve the following differential equation using Laplace transform method.
\[
\frac{d^2 x}{dt^2} + 18 \frac{dx}{dt} + 80x = 8
\]
given \( x(t) = 1 \) at \( t = 0 \)
\[
\frac{dx}{dt} = 2 \text{ at } t = 0
\]
B) Find inverse Laplace transform of

\[ I(s) = \frac{S}{S^2 + 9S + 20}. \]

3
A) Explain the Senesoidal response of series R–L–e circuit. 8
B) Evaluate the resonant frequency for a series 8
resonance circuit.

OR

3
A) Find the expression for the average power of an a.c. 8
B) State fourier series and find the value of fourier 8
constants.

4 Write short notes on any two. 16
A) Laplace transform of 4th order derivative.
B) Low Pass Filter
C) Parallel resonance
D) RMS Value of an alternating voltage.
E) Senusoidal response of a purely inductive ckt.