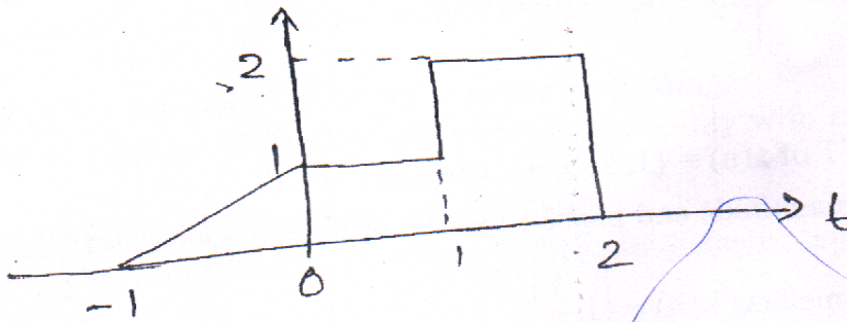QP Code **12503**

(3 Hours) [Total Marks : 80]

N.B.: (1) Question No. 1 is **compulsory**.
(2) Attempt any **three** questions out of remaining **five** questions.

1. (a) Give the classification of signals and systems. 5

   (b) What is ROC ? 5

   (c) Differentiate between minimum, maximum and mixed phare. 5

   (d) Write DFT properties. 5

2. (a) A continuous time signal x(t) given below. 10

   Sketch

   (i) $X_1(t) = -2\,x(t)$

   (ii) $X_2(t) = x(t-3) - 2x(t)$

   (b) Determine the stability and causality of the system describe by the transfer function. 10

$$H(z) = \frac{1}{1-0.25z^{-1}} + \frac{1}{1-2z^{-1}}$$

   for ROC $0.25 < |Z| < 2.$

3. (a) Consider the following linear constant co-efficient difference equation

$$y(n) - \frac{3}{4}y(n-1) + \frac{1}{8}y(n-2) = 2x(n-1)$$

   Determine y(n), when x(n) = y(n).

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