COSM

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Page No.:
Date:
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Discrete | continuous Random variable.

Q1 Define random variable w.r.t probability Distribution.

→ **Random variable:** A random variable provides a means for describing experimental outcomes using numeric values.

- A random variable is a numerical description of the outcome of an experiment.

- A random variable can be a 'Discrete random variable' or a 'continuous random variable'.

Q2 Give example of
- Discrete random variable
- continuous random variable.

→ **Discrete random variable:**

(i) Number of customers who place an order.
i.e. 0, 1, 2, 3, 4, 5..

(ii) Number of defective radios out of 50 radios.
i.e. 0, 1, 2, 3, ... 49, 50

(iii) Number of customers in a restaurant.
i.e. 0, 1, 2, 3, ...

(iv) Gender of the customer.
i.e. 0 if male
1 if female.

Continuous random variable:

(i) Time of customer arrivals in a bank in minutes
ie. $x \geq 0$

(ii) Height of students in a class in inches.
ie. $x \geq 0$

(iii) Percentage of project complete after six months
ie. $0 \leq x \leq 100$

(iv) Weight a shipment of goods in pounds
ie. $x \geq 0$

Q3. Discrete or continuous. & Range.

→ (1) Tossing a coin with outcome as no. of heads.
→ Discrete random variable.
Range: 0, 1 — 0 - Not head, 1 - Head.

(2) Tossing 2 coins with outcome as no. of tails.
HH
TT
HT
TH
→ Discrete random variable.
Range: 0, 1, 2 — 0 - HH, 1 - HT, TH, 2 - TT

(3) Time between 2 consequitive ~~flights~~ flight arrive
→ Continuous random variable.
Range: $x > 0$

(4) Distance between.
→ Continuous random variable.
Range: $x > 0$

(5) Outcome of football match.
→ Discrete random variable.
Range: 0, 1 — 0 for Lose, 1 for Win.

(6) No. of person selected in Interview.
→ Discrete random variable.
Range: 0, 1, 2, 3, ...

(7) Weight of shipment.

→ continuous random variable.

Range: $x \geq 0$