

Mid-West University
Examinations Management Office

Surkhet, Nepal

End Semester Examination-2080

Level: B.Ed./ IV Semester

FM: 60

Time: 3.00 hrs.

PM: 30

Sub: Probability with Stochastic for Teacher (MATH 343)

*Candidates are required to give their answers in their own words as far as practicable.
Attempt all the questions.*

Group "B"

6×5 = 30

1. State axioms of probability. Given that $P(A) = 3/8$, $P(B) = 5/8$, $P(A \cup B) = 3/4$ then find $P(B/A)$ and $P(A/B)$.
2. Define permutation and combination with example. If two coins are tossed, find the probability of getting
 - a. One head
 - b. at most one tail
 - c. exactly one head
3. Define conditional Probability. A fair die is rolled find the probability of getting even number?

Or

A bag contains 8 white balls and 5 blue balls. In how many ways can 5 white balls and 3 blue balls be drawn?
4. If 3% of the electric bulbs manufactured by a company are defective. Find the probability that in a sample of 100 bulbs (a) 0 (b) 2 bulbs will be defective.
5. Find the expected number of boys for the three child family (that is expected value of the number of boys).
6. The probability of a man hitting a target is $1/3$ if he fires 5 times, what is the probability of hitting the target
 - a. Exactly one time?
 - b. At least twice?

Or

Two coins are tossed. What is the probability of getting?

- i. Two heads?
- ii. At least one head?
- iii. At most one head?

Group "C"

2×10=20

7. Define the expected value of binomial distribution with mean, standard deviation and variance. If a sample of 3 items are selected from the box containing 12 items which 3 are defective. Find the expected number $E(X)$ of defective items.
8. What is normal distribution? A coin tossed 400 times. Find the probability that number of heads will not differ from 200 by more than 10.

Or

Define mean and variance of a random variable. Prove that if x is a random variable and k is a real number then:

- (i) $\text{var}(X+K) = \text{Var}(X)$
- (ii) $\text{Var}(KX) = k^2 \text{var}(X)$

THE END