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IV Semester B.C.A. Degree Examination, June/July -2026

COMPUTER APPLICATIONS

Probability and Statistics

(SEP Scheme)

Time : 1½ Hours

Maximum Marks : 40

Instructions to Candidates:

Answer all the Sections.

SECTION - A

I. Answer any Five questions. Each question carries 2 marks. (5×2=10)

1. Define sample space. Give one example.
2. A coin is tossed four times. Find the probability of getting no head.
3. If $P(A \cap B) = 0.16$ and $P(A) = 0.4$ find $P(B / A)$.
4. Define probability mass function.
5. A fair die is rolled once Let x be the number shown. Write $p(x = 5)$.
6. Define expectation of an random variable.

SECTION - B

II. Answer any Four questions. Each question carries 5 marks. (4×5=20)

7. A coin is tossed 3 times. Write the sample space. Find the probability of getting
 - a) No head
 - b) At least one head
 - c) All heads
 - d) Exactly two heads
8. Explain the multiplication rule of probability explain independent and dependent cases with examples.
9. A problem is given to three students A, B and C. The probabilities that A, B and C solve the problems are $2/3$, $3/4$ and $1/4$. respectively. Assume that the students work independently. Find the probability that the problem is solved by any one of them.

[P.T.O.]



10. A random variable X has distribution.

X	0	1	2	3
$p(x)$	k	$2k$	$3k$	$4k$

Find k and mean of X .

11. An urn containing 7 white and 3 red balls. Two balls are drawn together at random from the urn. Find the expected number of white balls drawn.

12. State and explain Baye's theorem. Mention any two applications.

SECTION - C

III. Answer any One question. This question carries 10 marks

(1×10=10)

13. a) Define the following terms

- i) Null event
- ii) Sure event
- iii) mutually exclusive events
- iv) Exhaustive events
- v) Equally Likely events

b) A bag contains 10 red and 5 white balls. Two balls are drawn. Find the probability of second is red if first was red.

14. a) A die is rolled twice. Let X be sum of numbers. Write pmf of X and also find mean of X .

b) A random variable X has the following probability function

x	0	1	2	3	4	5	6	7
$p(x)$	0	k	$2k$	$3k$	k	k^2	$2k^2$	$7k^2+2k$

- i) Find k .
- ii) Evaluate $p(x < 6)$
- iii) $p(x \geq 6)$
- iv) $p(0 < x < 5)$