

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-3
Internal Assessment
Full Marks: 10

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Notations and symbols have their usual meaning.

Answer all questions:

2×5

1) Which of the following is not true for probability distribution function $F(X)$?

- a) $F(-\infty)=0$
- b) $F(\infty)=1$
- c) $F(X)$ is monotone non-decreasing everywhere.
- d) The distribution function is continuous at left of a point $X=a$.

2) The multiplicative group $\{-1,1\}$ is a subgroup of

- a) $\{1, -1, i\}$
- b) $\{1, -1, -i\}$
- c) $\{1, -1, i, -i\}$
- d) $\{1, -1, 0, i\}$

3) Which of the following forms a group?

- a) (\mathbb{R}, \cdot)
- b) (\mathbb{Q}, \cdot)
- c) (\mathbb{Z}, \cdot)
- d) $(\mathbb{Q}-\{0\}, \cdot)$

4) If A and B be two events such that $P(A) = P(B) = 1$, then $P(A+B)$ is

- a) 0
- b) 1
- c) $\frac{1}{2}$
- d) $\frac{2}{3}$

5) In Klein's 4-group $\{e, a, b, c\}$, the order of each non-identity elements are

- a) 0
- b) 1
- c) 2
- d) 3

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-3
Theory Examination
Full Marks: 32

The figures in the margin indicate full marks.

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Answer any FOUR questions:

8×4

- 1) Two dice are thrown. Find the probability that the sum of the faces equal to 9.
- 2) Show that the set $\{ 2^n : n \in \mathbb{N} \}$ forms a commutative group with respect to multiplication.
- 3) Convert the number 759_{10} into octal system.
- 4) Find the value of $(110011101)_2 + (10110111)_2$
- 5) Draw a flowchart to find the largest of the three distinct numbers X, Y, Z.

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-3
Tutorial Examination
Full Marks: 08

The figures in the margin indicate full marks.

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Notations and symbols have their usual meaning.

Answer any ONE question:

8×1

- 1) Design an algorithm to compute the factorial of a positive integer n .
- 2) An urn contains 8 red and 5 white balls. 5 balls are drawn randomly. Find the probability that 3 balls are red and 2 balls are white.