

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-1
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 forms a group?
 a) (\mathbb{R}, \cdot) b) (\mathbb{Q}, \cdot) c) (\mathbb{Z}, \cdot) d) $(\mathbb{Q} - \{0\}, \cdot)$

- 2) 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

- 3) The multiplicative group $\{-1, 1\}$ is a subgroup of
 a) $\{1, -1, i\}$
 b) $\{1, -1, -i\}$
 c) $\{1, -1, i, -i\}$
 d) $\{1, -1, 0, i\}$

- 4) 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 $X=a$.

- 5) 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) $\frac{2}{3}$

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-1
Theory Examination
Full Marks: 32

The figures in the margin indicate full marks.

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Answer any FOUR questions:

8×4

- 1) Show that the set $\{ 2^n : n \in \mathbb{N} \}$ forms a commutative group with respect to multiplication.
- 2) Find the value of $(110011101)_2 + (10110111)_2$
- 3) Draw a flowchart to find the largest of the three distinct numbers X, Y, Z.
- 4) Two dice are thrown. Find the probability that the sum of the faces equal to 10.
- 5) Convert the number 2759_{10} into octal system.

2020
MATHEMATICS GENERAL
Paper: CC4/GE4
SET-1
Tutorial Examination
Full Marks: 08

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 any ONE question:

8×1

- 1) Design an algorithm to compute the factorial of a positive integer n .
- 2) An urn contains 7 red and 5 white balls. 4 balls are drawn randomly. Find the probability that 3 balls are red and one ball is white.