Internal Assessment – 2021

Category – General F.M – 18

SEM – I DC – 01 Time – 1 hr

Group A (8 marks)

Answer any 4 questions 4 X 2 = 8

1.

a) State the Fundamental theorem of classical algebra.
b) What is the remainder when $x^4 + 4x^3 + 2x^2 - 4x + 6$ is divided by (x – 2)?
c) Define multiple root of an equation.
d) Solve the equation: $x^2 + x + 1 = 0$.
e) Can the numbers: $\frac{1}{\sqrt{2}}$,1, $\sqrt{3}$ be direction cosines of a straight line ?
f) What are the direction cosines of X- axis .

Group B (10 marks)

Answer any two questions 5X2= 10

2

a) Express $x^5 - 5x^4 + 12x^2 - 1$ as a polynomial in (x-1).
b) The equation $ax^3 + 3bx^2 + 3cx + d = 0$ has two equal roots, prove that$(bc - ad)^2 = 4(b^2 - ac)(c^2 - bd)$.
c) Prove that $x^2 + x + 1$ is a factor of $x^{10} + x^5 + 1$
d) Show that the pair of straight lines whose direction cosines are given by $3lm - 4\ln + mn = 0$ and $l + 2m + 3n = 0$ are at right angles.

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