Paper ID [A0101]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 1ˢᵗ / 2ⁿᵈ)

ENGINEERING MATHEMATICS - I (AMA - 101)

Time : 03 Hours   Maximum Marks : 60

Instruction to Candidates:

1) Section - A is **Compulsory**.

2) Attempt any **Five** questions from Section - B & C.

3) Select at least **Two** questions from Section B & C.

Section - A

Q1)   (Marks : 2 Each)

a) What is rank of a matrix?

b) Define unitary and hermitian matrices.

c) State Green's theorem in plane.

d) State Gauss Divergence theorem.

e) Write prior definition of probability.

f) What do you mean by sampling?

g) Explain student's t-test.

h) What is I.F. (integrating factor).

i) What do you mean by level of significance?

j) What is interpolation and extrapolation?

Section - B

Q2) State and prove Cayley Hamilton theorem.

Q3) Write short note on the following:

(a) Normal distribution.

(b) Stoke's theorem.

Q4) If the probability of a bad reaction from a certain injection is 0.001. Determine the chance that out of 2000 individuals more than two will get a bad reaction.

Q5) A coin was tossed 400 times and the head turned up 216 times. Test the hypothesis that coin is unbiased.

Section - C

Q6) Solve the following equation:

$$xyp^2 + p\,(3x^2 - 2y^2) - 6xy = 0$$

Q7) Explain the following:

(a) Sterling's formula.

(b) Newton's divided difference formula.

Q8) Explain Chi-Square test as a test of goodness of fit.

Q9) Write different methods of sampling.