

Maximum Marks – 50

Time – 2.00 Hours

- a) Answer any Two questions out of Ito 4 questions.
 b) Question No.5 is compulsory and answer any four out of six sub-questions.
 c) Calculator can be used.

- Q1. a) What is Golden Ratio? (15M)
 b) Find the Golden Ratio?

Consider the line Segment below and assume it satisfies $AB/BC = AC/AB$

What is this ratio?



(Hint: Set $AC = 1$, $AB = X$, $BC = ?$ And Solve X .
 Why can we set $AC = 1$?)

Can you determine the ratio without assuming that $AC = 1$?

- Q2. a) Explain Measures of Central Tendency. (15M)
 b) Find the best fit values of 'a' and 'b' so that $y = a+bx$ fits the data given in the table.

X:	0	1	2	3	4
Y:	1	1.8	3.3	4.5	6.3

- Q3. a) Define Adjoint & Transpose of a Matrix (15M)
b) Find the Rank of the following matrix

$$A = \begin{bmatrix} 4 & 5 & -6 & 1 \\ 7 & -3 & 0 & 8 \end{bmatrix}$$

- Q4. a) Define Tangent and Normal. (15M)
b) Find the points on the Curve $y(x)$ given by $Y = x^3 - 6x^2 + x = 3$ where the tangents are parallel to the line $y = x + 5$.

- Q5. Write short notes on any FOUR of the following: (4x5 = 20M)

- a) Measure of Kurtosis
- b) Define Thermodynamic temperature
- c) Explain Golden Ratio with necessary sketches
- d) Write short note on Time, Mass and Distance
- e) What is Multiple Integration
- f) What are the volumes of
 - Parabolic Cone
 - Cylinder
 - Frustum
