RAJASTHAN INSTITUTE OF ENGINEERING & TECHNOLOGY, JAIPUR

FIRST MID TERM EXAMINATION

SESSION: 2018-19

VII SEM MECHANICAL ENGINEERING

SET-B

TIME – 2 HRS **SUB – FINITE ELEMENT METHOD (7ME1A)** **MAX MARKS – 20**

Instruction for students:

1. No provision for supplementary answer book.
2. Each question carries 5 marks.

Q.1 What is Numerical method? Write deferent numerical method based tools available in market with their application.

OR

Q.1 Write the steps to be followed in solving a physical problem by a numerical method method.

Q.2 Explain Ranking method in matrix algebra with a suitable example.

OR

Q.2 Solve the given simultaneous equations:

$$5x_1 - 4x_2 + x_3 = 10$$
$$x_1 - 8x_2 - 2x_3 = 4$$
$$-5x_1 + 4x_2 + x_3 = 2$$

Q. 3 Classify different types of solution, Explain uniqueness of solution with a suitable example.

OR

Q.3 Find the rank of the given matix;

$$\begin{matrix} 3 & 4 & 3 \\ 1 & 3 & 5 \\ 6 & 8 & 8 \end{matrix}$$

Q. 4 Explain local stiffness matrix and global stiffness matrix and its properties.

OR

Q. 4 Explain the following given in brief.

a) Draw three dimensional normal stress and shear stress on a finite element
b) Difference between approximate solution and exact solution