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MEB-4732 Seat No._____

M. Sc. (Sem. I) Examination

November / December - 2018

Mathematics : SSB - 7

(Introduction to MATLAB)

Time : **2** Hours] [Total Marks : **50**

Instructions :

(1) All questions are compulsory.

(2) Follow standard notations and conventions.

(3) Each question carries 10 marks.

1 Attempt any **two** of the following :

(a) Describe the utilities of several windows of Matlab interface.

(b) If matrices $A=\begin{bmatrix}21 & 27\\ -18 & 8\end{bmatrix}$ and $B=\begin{bmatrix}-7 & -3\\ 9 & 4\end{bmatrix}$.

Then find

(i) Their array product

(ii) Their array right division

(iii) B raised to the third power element by element.

(c) Generate a table of conversions from degrees to radians, starting from 0^{o} to 360^{o} with increment of 10^{o}.

2 Attempt any **two** of the following :

(a) Explain continues command with suitable example with all the details.

(b) Explain various rational and logical operators in Matlab.

(c) What is different between area and plot command.

3 Attempt any **two** of the following :

(a) Write a Matlab function to compute *n.!* using recursion.

(b) Explain *'for'* loop and *'while'* loop with example.

(c) Explain *'if-else'* statement with example.

4 Attempt any **two** of the following :

(a) Explain the switch structure with example.

(b) Write a Matlab program for trapezoidal rule for the equation $y = cos\ (x)$.

(c) Explain the special matrices with example.

5 Answer the following questions.

(a) Define Linear Algebraic Equations in Matlab expression.

(b) Solve the equations using Matlab command

$$\int_0^5 \left(x^2 + xy + y^2\right) dy$$

(c) What is the meaning of NaN and Eps ?

(d) What is the difference between *'mesh'* and *'surf'* plotting functions ?

(e) Explain *'break'* statement.