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Code No: EE1522

GEC-R14

**III B. Tech I Semester Regular Examinations, November 2016**  
**MODELLING AND SIMULATION OF ENGINEERING SYSTEMS**  
 (Open Elective and Common to All Branches)

Time: 3 Hours

Max. Marks: 60

**Note:** All Questions from **PART-A** are to be answered at one place.

Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

**PART-A**

**6 × 2 = 12M**

1. What are different file types in MATLAB?
2. Calculate the following  $\sin \pi/6$ ,  $\sin^2(\pi/6) + \cos^2(\pi/6)$ ?
3. What are different relational operations in MATLAB?
4. Write short note on animation?
5. What is simulink?
6. Write down basic statistics command?

**PART-B**

**4 × 12 = 48M**

1. a) Explain in detail how to create row and column vectors? (4M)  
 b) How to do array operations? How to use elementary math functions such as square root, exponentials and logarithms with array arguments? (8M)
2. a) How to generate x- and y-coordinates of 100 equidistant points on a unit circle? (4M)  
 b) Plot  $y = \sin x$ ,  $0 \leq x \leq 2\pi$ , taking 100 linearly spaced points in the given interval. Label the axes and put "Plot created by your name" in the title. (8M)
3. a) Get the best linear (straight line) fit through the following data for x and y given below? (6M)

x	5	10	20	50	100
y	15	33	53	140	301

- b) Compute the following integral? (6M)

$$\int_{1/2}^{3/2} e^{-x^2} dx.$$

4.   a) Explain (i) Comet plot (ii) Image Read and write (4M)  
      b) Write a Matlab program to swing the sine wave in 2D axis? (8M)
5.   a) What is the difference between numeric and symbolic computation? (4M)  
      b) Explain the procedure of designing, creating and working of a digital calculator with a GUI (8M)
6.   Write down the specialized graphic functions for 2D plotting? Explain any two in detail? (12M)

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