Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17EC2064** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MATLAB PROGRAMMING FOR ENGINEERS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Determine the following for the given:   1. u = [10, 20\*i, 10+20] (ii) v = [-1; 20; 3] (iii) x = [u’, v] 2. w = [1 0 -9; 2 -2 0; 1 2 3] (v) y(3,3) = -7   (vi) v(4) = x (2,1) (vii) z = [zeros(4,1), ones(4,1), zeros(1,4)]  What is the size of (i) – (vii)? What is the value of x(2,1)?  What is the value of y(2,1)? What is the value of v(3) after the statement (vii) is executed? | CO3 | 10 |
| b. | If c = [1.1 -3.2 3.4 0.6; 0.6 1.1 -0.6 3.1; 1.3 0.6 5.5 0], find the following: (i) c(2, : ), (ii) c(:, end), (iii) c(1:2, 2:end), (iv) c(6)  (v) c(4:end), (vi) c(1:e, 2:4), (vii) c([1 3], 2) and (viii) c([2 2], [3 3]). | CO3 | 10 |
| **(OR)** | | | | |
| 2. | a. | Analyze the execution of the following statements: a = zeros(2); b = zeros (2,3); c = [1 2; 3 4] and d = zeros (size (c)). | CO3 | 4 |
| b. | Answer the following question for the array c = [1.1 -3.2 3.4 0.6; 0.6 1.1 -0.6 3.1; 1.3 0.6 5.5 0].  (i) What is the size of c? (ii) What is the value of c (2,3)?  (iii) List the subscripts of elements containing the value 1.1 | CO3 | 4 |
| c. | Discuss the significance of Matlab windows. | CO1 | 12 |
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| 3. | a. | Analyze the following input/output functions: load, save, fopen, fclose and exist. | CO1 | 10 |
| b. | Illustrate the following control statements in Matlab: if, for loop, and while loop. | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Examine the steps involved in the top-down design program process. | CO1 | 10 |
| b. | Describe the use of rounding and string conversion functions. | CO1 | 10 |
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| 5. | a. | Describe how the value of a polynomial, its root and derivative can be calculated using Matlab. | CO1 | 10 |
| b. | Illustrate the creation of a function file in Matlab. Differentiate function and script files. | CO1 | 10 |
| **(OR)** | | | | |
| 6. | a. | Describe the Matlab command to create two dimensional plot and discuss the line specifiers, property name and property values. | CO2 | 12 |
| b. | Discuss the Matlab commands to create symbolic object and expression, converting symbolic expression to numerical. | CO2 | 8 |
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| 7. | a. | Analyze the graphical outputs of executing the following commands: bar, stairs, stem, pie and hist. | CO3 | 15 |
| b. | Discuss the types of error that occur in Matlab program. | CO3 | 5 |
| **(OR)** | | | | |
| 8. | a. | Describe the components, containers and callbacks for creating Matlab graphical user interface. | CO1 | 15 |
| b. | Discuss on callback subfunction usage in graphical user interfaces. | CO1 | 5 |
| 9. |  | **Compulsory**: |  |  |
| a. | Discuss the Matlab form of common array and matrix operations. | CO3 | 10 |
| b. | If a = [ 1 0; 2 1], b = [-1 2; 0 1], c = [3;2] and d = 5, what is the result of (i) a+b (ii) a.\*b (iii) a\*b (iv) a\*d and (v) a.\*d ? | CO3 | 10 |