Question Paper Code : 6482

B. Voc. (Semester-IV) Examination, 2018

RENEWABLE ENERGY TECHNOLOGY

[Module RET-405]

(MATLAB)

Time : Three Hours] **[Maximum Marks : 70**

Note : Attempt **five** questions in **all**. Question **No. 1** is **compulsory.** Besides this, attempt **one** question from each unit.

1. Answer the following : [3x10=30]

   (a) Describe the four of the wisdoms which open in default view of MATLAB desktop.

   (b) How can we take the help from the MATLAB for the both condition ?

   (c) What are the rules for defining scalar variables ?

   (d) What are the script files and its uses ?

   (e) How can we create vector with constant spacing ?

$f(x)=e^{2\sin(0.4x)}5\cos(4x)$ in the domain $-20\le x\le 30$.

(ii) A parametric equation is given by $x=1.5\sin(5t), y=1.5\cos(3t)$ plot the function for $0\le t\le 2\pi$. Format the plot such that the both axes will range from -2 to 2.

UNIT-IV

8. Write the procedure to save and load the variables that are stored in the workspace in a different file format.[10]

9. How we can import and export data into and from excel ? [10]

----- x -----

(f) Discuss the use of colon in addressing arrays.

(g) Describe the line specifiers such as line color, marker type and line style.

(h) Discuss the formatting commands for formatting of plot.

(i) What are the relational and logical operators ?

(j) What is the order of precedence for arithmetic, relational and logical operators ?

UNIT-I

2. Define the variables a, b, c and d as $a = 13, b = 4.2, c = (4b)/a$ and $d = abc/(a+b+c)$ then evaluate : [10]

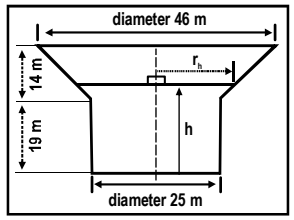
(i) $$a\frac{b}{c+d} + \frac{da}{cb} - (a - b^2)(c+d)$$

(ii) $$\frac{\sqrt{a^2+b^2}}{(d-c)} + \ln(b - a + c - d)$$

3. Given $\int \cos^2(ax)dx = \frac{1}{2}x - \frac{\sin 4ax}{4a}$ use MATLAB to calculate the following definite integral : $\int_{\frac{\pi}{9}}^{\frac{3\pi}{5}} \cos^2(0.5x)dx$. [10]

UNIT-II

4. The tank in a water tower has the geometry shown in the figure inside the tank there is a float that indicates the level of the water. Write a MATLAB program that determines the volume of the water in tank from the position (h) of the float. The program asks the user to entre a value of h in m and as output displays the volume of the water in m^3. [10]



5. Write a program to calculate square root and compare the calculated value with stored value in MATLAB. [10]

UNIT-III

6. Solve these problems : [10]

(i) Plot the function $y = 3x^2 - 26x + 10$ and its first and second derivatives for $-2 \le x \le 4$ all in the same plot.

(ii) Plot the function $f(t) = \frac{(x+5)^2}{4+3x^2}$ for $-3 \le x \le 5$.

7. Solve these problems : [10]

(i) Use the fplot command to plot and function