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End Semester Examination of Semester–I, 2015
Subject : MATHEMATICS (PG)
Paper : MTM–106
Full Marks : 30
Time : 1 Hrs

The figures in the margin indicate the marks corresponding to the question

Candidates are requested to give their answers in their own word as far as practicable.

Illustrate the answers wherever necessary.

Group A

Answer **any two** out of four questions : 6x2=12

1. i) What is an array of pointer? How it is declared? 2

   ii) Explain the difference between 'call by reference' and 'call by value' with suitable examples. 4

2. i) How is a structure different from an array. 4

   ii) What will be the output of the following program?

```
Struct my-struct{
Int i = 7;
Float f = 999.99;
} var;
```

```
int main()
{ var. i = 5;
Printf ("%d %.2f", var.i, var.f);
Return(0);
}
```

2

3. What is an enumeration? How is an enumeration defined? What advantages is there in using enumeration variables within a program? What are enumeration variables? How are the declared? 6

4. a) Explain the purpose of the following :
float (*x) (int *a). 2

b) How is an array name interpreted when it is passed to a function? 2

c) What is the difference between a text file and binary file? 2

Group B

Answer **any two** out of four questions : 2x2=4

5. What is file?

6. What is the purpose of fopen() function?

7. How is an array name interpreted when it is passed to a function.

8. What is the difference between a text file and binary file?

Group C

Answer **any one** out of two questions : 6x1=6

9. i) Suppose x = [5, 8, 2, 5, 7] and y = [3; 6; 8; 1; 4]. What will be the values of x * y and y * x. 2

   ii) How will you write the name, address and age of the three students in a cell array? 2

   iii) Write an m-files script to subtract two raw arrays of different lengths. 2

10. a) Write a script in MATLAB to find a real root of f(x) = 0 by Newton-Raphson method through a user-defined function. 3

    b) For a matrix A, how will you find 3

       i) the elements of A whose values are greater then 5 and less than 15.

       ii) Set the elements whose values are greater than 5 and less than 15 to 7.

Group D

Answer **any one** out of two questions : 2x1=2

11. Let X = [2, 3, 5, 7, 10, 8; 4, 5, 2, 6, 1, 7; 8, 4, 7, 5, 2, 10]
What will be the size and value of y which is related to x as y = x (1 : 2 end, 2 : 2 : end)?

12. Express the following in MATLAB :

$$\frac{(-1)^n x^{n+2m}}{\lfloor m \rfloor (n+m)} \text{ and } \frac{e^{\left|x\left|\log_2\left(y^2+5y+7\right)\right|\right|}}{\left|\log_{10}\left(\left\lfloor y^3 \right\rfloor\right)\right|}$$