F.E. Semester – I (RC 2016-17) Examination, November/December 2016
FUNDAMENTALS OF COMPUTER ENGINEERING (New)

Duration : 3 Hours | Max. Marks : 100

Instructions : *1) Answer **any 5** questions by selecting two questions from Part – **A**, **two** questions from Part – **B** and **one** question from Part – **C**.*
*2) Make suitable assumptions if **required**.*

PART – A

Answer **any two** questions from the following.

1. a) Explain the different generations of computers. **6**

   b) Explain the IPOS operations/ components for an ATM cash withdrawal banking system. **4**

   c) Explain the following functions of an operating system. **6**
      i) Booting the Computer
      ii) Configuring Devices
      iii) Monitoring Resources and Jobs.

   d) Explain the following DOS commands with a suitable example of each. **4**
      i) COPY
      ii) DIR
      iii) DEL
      iv) REN

   (20 Marks)

2. a) What do you mean by the binary number system ? Convert 11001 from binary to decimal. **4**

   b) Explain in short the various components found inside a CPU. **6**

   c) State and explain any 2 major differences between operating systems. **6**

   d) Write a short note on the Linux OS. Explain any 4 basic Linux Commands. **4**

   (20 Marks)

P.T.O.

3. a) Explain the different types of memory found inside a computing system. **6**

   b) What do you mean by RFID ? Explain any 2 applications of RFID technology. **6**

   c) What do you mean by RAID ? Explain its significance. **4**

   d) What do you mean by a database ? Explain the importance of a DBMS. **4**

(20 Marks)

PART – B

Answer **any two** questions from the following.

4. a) Explain the Symmetric key cryptography. **5**

   b) Write a short note on hash functions. **5**

   c) Explain cipher block chaining mode. **5**

   d) Name the reasons why electronic banking is required. **5**

(20 Marks)

5. a) Write short notes on mobile banking. **5**

   b) Explain legal recognition of digital signature. **5**

   c) Explain the three windows of MATLAB. **8**

   d) Give syntax of line command to generate overlay plots in MATLAB. **2**

(20 Marks)

6. a) Consider the following matrix. **10**

$$M = \begin{bmatrix} 3 & 2 & 4 \\ 1 & 6 & 5 \\ 5 & 0 & 3 \end{bmatrix}$$

   i) Write MATLAB command to create the matrix M given above.

   ii) Write MATLAB command to retrieve the following sub-matrix from the matrix M : $\begin{bmatrix} 1 & 6 & 5 \\ 5 & 0 & 3 \end{bmatrix}$.

   iii) Given vector Y = [1 ; 3; 2], write MATLAB command to multiply the matrix M by vector Y.

iv) Write MATLAB command to find transpose of matrix M.

v) Write MATLAB command to exponentiate matrix M to power of 3 and write down the resultant matrix.

b) What do you mean by view in MATLAB ? Explain two viewing angles with respect to 3 D plots. 4

c) Write MATLAB commands for the following expressions. 6

i) $2\frac{\sqrt{3}-1}{\left(\sqrt{5}+1\right)^2}-1$

ii) Area = πr^2 with $r = \pi^{\frac{1}{6}}$

iii) $\frac{3^8}{3^8-1}$

(20 Marks)

PART – C

Answer **any one** question from the following:

7. a) State and explain any 3 general printer characteristics. 5

b) State and explain any 6 common spreadsheet functions. State the difference between absolute addressing and relative cell referencing. 5

c) List the Information security and digital forensics application where certain extensions of hash functions are used. 5

d) Explain the use of following functions in MATLAB with suitable example. 5

i) fplot

ii) fill

(20 Marks)

8. a) What a USB flash drives ? Write a short note on the various features of a USB drive. 5

b) Write a short note on the MAC OS and UNIX OS. 5

c) List the various proprietary algorithms for symmetric key cryptography. 5

d) List and explain any four functions used for plotting 3-D plots. 5

(20 Marks)