SEM 1 – 6 (RC 16 – 17)

F.E. (Semester – I) (Revised in 2016-17) Examination, Nov./Dec. 2018
FUNDAMENTALS OF COMPUTER ENGINEERING

Duration : 3 Hours | Total Marks : 100

Instructions : 1) *Attempt **any five** questions, by selecting **two** questions from Part – **A**, **two** 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) What is a URL ? Explain the structure of an URL with the help of an example. **4**
   c) Explain how audio and video data is represented in binary form to be used with a computer. **4**
   d) What is binary number system ? Perform the following conversions : **6**
      i) Binary to Decimal : 109
      ii) Decimal to Binary : 1110111

2. a) Write a short note on Assembler and Compiler. **6**
   b) Explain the following DOS commands with a suitable example of each : **4**
      i) FORMAT
      ii) DIR
      iii) DEL
      iv) REN.
   c) Explain the four steps in a machine cycle. Explain the various machine cycles used to process the command 2+3. **8**
   d) What do you mean by cache memory ? **2**

P.T.O.

3. a) What is Database ? Explain importance of DBMS. 4

   b) Explain different types of Pointing devices. 6

   c) Explain the following processing techniques utilized by an operating system : 6

      i) Multitasking

      ii) Multiprocessing, Parallel Processing

      iii) Buffering and spooling

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

PART – B

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

4. a) With a neat diagram explain symmetric key cryptography. Also state its limitations. 6

   b) What is hacking ? Explain in detail the various measures that can prevent hacking. 6

   c) Which are the various risks in electronic banking ? 4

   d) Show the results generated by following MATLAB commands : 4

      i) a = 0 : 2 : 8

      ii) b = –3 : 1 : 5

5. a) Write short notes on : 6

      i) Cipher block chaining mode

      ii) Cipher feedback mode

   b) Which are the various cases in which a certifying authority may revoke a digital signature certificate ? 5

   c) Explain the windows of MATLAB. 4

   d) Write MATLAB commands for the following : 5

      i) To create a row vector

      ii) To create a 2D array

      iii) To add 2 matrices

      iv) Transpose of matrix

      v) Delete an element from a matrix.

6. a) Name the various technology based banking products and services. 4

b) Given the following matrices show the results generated by MATLAB command A.*B 2

B = eye (2)

A = [17 20; 19 30]

c) Explain different Internet and World Wide Web protocols. 6

d) Describe the following functions in MATLAB with suitable example : 8

i) fplot

ii) fill

iii) polar

iv) semilogx

PART – C

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

7. a) Explain the features of USB flash drives. 4

b) Explain the components of a CPU. 6

c) Explain the asymmetric key cryptography. 6

d) Write MATLAB commands for the following : 4

i) Area= πr^3 with $r = \pi^{2/7}$

ii) $7(45^{1/4}) + 13^{0.35}$

8. a) Write a short note on partitioning a hard drive. 5

b) What is word processing ? Explain paragraph formatting and state its types. 5

c) State general printer characteristics. 2

d) Explain the following DOS commands with an example : 8

i) COPY

ii) CD

iii) REN

iv) MKDIR.