FE-106

Total Number of printed pages : 03

F.E Semester I (Revised Course 2016-17)
EXAMINATION OCTOBER 2020
Fundamentals Of Computer Engineering

[Duration : Two Hours] **Total Marks 60]**

Instructions :
1. Answer THREE FULL QUESTIONS with ONE QUESTION FROM EACH PART.
2. Make suitable assumptions if required

PART – A

Question – 1 (20 Marks)

a) Explain the IPOS operations/components for a book issuing system in a library. 4

b) Explain in short the six categories of computer based on size, capability and price. 6

c) Explain the following functions of an Operating system : 6
   i) File Management
   ii) Security
   iii) Booting the Computer

d) Explain the following DOS commands with a suitable example of each: 4
   i) CD
   ii) FORMAT
   iii) COPY
   iv) DIR

Question – 2 (20 Marks)

a) What do you mean by the binary number system ? Convert 10101 from binary to decimal. 4

b) Explain how graphics data is represented in binary form to be used with a computer. 6

c) What do you mean by a compiler ? Explain how it works. 6

d) Write a short note on the following versions of Windows OS : 4
   i) Windows XP
   ii) Windows Vista

Question – 3 (20 Marks)

a) Write short notes on the following flat-panel display technologies: 6
   i) LCD
   ii) LED and OLED Displays

b) Explain any 4 display device characteristics in short. 4

c) Explain the different types of hardware components listed by operation. 5

d) Explain the techniques Buffering and Spooling used by an operating system. 5

PART – B

Question – 4 (20 Marks)

a) Write MATLAB command for the following expressions. 6

i) $A = \pi r^2$ with $A = \pi^{1/4} - 1$

ii) $\frac{3^6}{3^6+1}$ and compare with $\left(1 - \frac{1}{2^5}\right)^{-1}$

iii) $y = \cosh^2 x - \sinh^2$ with $x = 32\pi$

b) Explain the use of following functions in MATLAB with suitable example 4

i) semilogx

ii) loglog

c) Consider the following matrix M 10

$$\begin{bmatrix} 4 & 7 & 6 \\ 3 & 9 & 8 \\ 1 & 2 & 3 \end{bmatrix}$$

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

ii) Write MATLAB command to retrieve the following submatrix from matrix M.

$$\begin{bmatrix} 3 & 9 \\ 1 & 2 \end{bmatrix}$$

iii) For the given vector y=[1; 3; 5], write MATLAB command to multiply the matrix M by vector y.

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

v) Write MATLAB command to exponentiate to power of 2 matrix M and write the resultant matrix.

Question – 5 (20 Marks)

a) What are the features supported in MATLAB for input output? 6

b) What do you mean by view in MATLAB ? 4

Explain two viewing angles with respect to 3-D plots

c) Explain the asymmetric key cryptograph 5

d) List the various hash algorithms. 5

Question – 6 (20 Marks)

a) Explain RSA algorithm. 5

b) Write short note on Automated Teller Machine. 5

c) List the various cases in which a certifying authority may revoke a digital signature certificate. 5

d) Explain the security requirements for application to application communication. 5

PART – C

Question – 7 (20 Marks)

a) Explain various types of recordable and rewritable discs. 5

b) Write a short note on Operating Systems for handheld PCs and other devices. 5

c) What are the various risks in electronic banking ? 5

d) Explain different ways of generating overlay plots in MATLAB. 5

Question – 8 (20 Marks)

a) Explain various kinds of pointing devices used in a computing system. 5

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

c) Write a short note on hash functions. 5

d) What are the features supported in MATLAB for input output? 5