BC-401

Numerical Methodology

BCA-4th Sem. (2017-2020)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. Evaluate the sum $S = \sqrt{3} + \sqrt{5} + \sqrt{7}$ to four significant digit and find its absolute, relative and percentage error.
2. An approximate value of π is given by 3.1428571 and its true value is 3.1415926. Find the absolute relative and percentage error.
3. Find the positive root of the equation $3x^3 + 5x - 40 = O_y$ correct to two places of decimals using the bisection method.
4. Find the root of the eq^n $x^3 - 5x - 7 = 0$ that lies between 2 and 3 (correct to 4 places of decimals), using method of false position.
5. Find the root of equation $x^x = 100$,correct to 4 places of decimals, using Newton Raphson method.

P.T.O.

6. Solve the following system equation using Gauss elimination method :-

$$x + y + z = 6$$
$$2x + y + 3z = 4$$
$$4x + 5y - 10z = 13$$

7. Using Taylor's series method of the fourth order, Find Y at X=1.1 and 1.2 by solving the equation.

$$\frac{dy}{dx} = x^2 + y^2, \qquad y(1) = 2.$$

8. Prove the following operator relations.

(i) $E^{1/2} = \mu + \frac{1}{2}\delta$

(ii) $\mu\delta = \frac{1}{2}\Delta . E^{-1} + \frac{1}{2}\Delta$

9. Solve the following system equation by Jacoby's iteration method :-

$$2X_1 + X_2 + X_3 = 5$$
$$3X_1 + 5X_2 + 2X_3 = 15$$
$$2x_1 + X_2 + 4x_3 = 8$$

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 BC-402

Comp. Graphics & Multimedia

BCA-4th Sem. (2017-2020)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. What is Computer Graphics? Discuss the application of computer graphics in detail.
2. What is Raster Scan Display? Distinguish between Random Scan Display and Roster Scan Display.
3. What is Hard copy output Device? Discuss the type of Hard copy output Device in details.
4. What is polygon filling? Write down the steps to fill the polygon using Flood fill Algorithm for four connected regions.
5. Discuss Midpoint circle Algorithm. Write down the steps to draw a circle using mid-point circle algorithm.
6. What is Input Device? Discuss the different types of input device use in computer Graphics.
7. What is Multimedia? Discuss the application of multimedia. Also explain the elements of multimedia.

P.T.O.

8. What is flat panel display? Describe the category of flat panel display.

9. Explain Rotation, Reflection and scaling of straight lines of polygon with suitable example.

10. Write Notes on any two:

(a) Application of Multimedia

(b) Scaling

(c) Direct View Storage Tube (DVST)

(d) Impact Printer

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BC-403

OS & Unix

BCA-4th Sem. (2017-2020)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. Explain Unix architecture.
2. What is Shell? Explain the types of shell.
3. What is an Operating System? Why is O.S. viewed as a resource allocator and control program ?
4. Explain the following commands with suitable syntax of examples:
   (a) mkdir
   (b) Who
   (c) ls-l
   (d) tail
   (e) head
5. What is the need of System calls? Explain the important services of an operating system.
6. What are multiprocessor systems? Define the different types of multiprocessing with their advantages.

P.T.O.

7. Explain how protection is provided for the hardware resources by the O.S. What are the system components of an O.S. and explain them?
8. Explain how operating system services are provided by system calls. Explain the various system calls.
9. Describe the structure of operating system. Explain the important modules of an operating system.
10. What do you understand by virtual machines? Describe the functionality of virtual machines.

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BC-404

Soft. Eng. Principles

BCA-4th Sem. (2017-2020)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. (a) What are approaches of software Design?
   (b) Differentiate the objects oriented and Function approaches to system Design.
2. (a) What is analysis concept and Principle?
   (b) Explain estimation of maintenance costs.
3. What do you understand by software Engineering? Explain S/W development practices.
4. (a) Define the term 'System Testing' & 'Integration Testing'.
   (b) Explain Black Box Testing.
5. (a) What is structure design ?
   (b) According to you characteristics of good S/W design.
6. Define module coupling and cohesion. Explain different types of coupling and cohesion.

P.T.O.

7. What is DFD ? Explain the rule for designing DFD. What are the various forms used for designing it.
8. What is adaptive maintenance? Explain how it is different from corrective maintenance?
9. What is Estimation? Explain its role in S/W Planning. Explain any one cost Estimation model.
10. Write Short notes on any four of the following:
    (a) Testing and Debugging
    (b) White box Testing
    (c) SRS.
    (d) Coding
    (e) Compiler and Interpreter.

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