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21-11-2019

1190

BCA / D-19

COMPUTER AND PROGRAMMING FUNDAMENTALS

Paper–BCA-III

Time allowed : 3 hours] *[Maximum marks : 80*

*Note : Attempt five questions in all, selecting at least one question from each section. **Question No. 1 is compulsory.** All questions carry equal marks.*

Compulsory Question

1. Answer the following questions in short :
   (a) Difference between Analog and Digital Computer. 2
   (b) What do you mean by Cache Memory ? 2
   (c) What is a Motherboard ? 2
   (d) What do you mean by Batch Processing ? 2
   (e) What is a Syntax Error ? 2
   (f) What are the advantages of a Flowchart ? 2
   (g) Explain Merging. 2
   (h) Explain advantages of HIGH Level Language over Machine Language. 2

Unit–I

2. (a) Discuss the Characteristics of a Computer. 7
   (b) Write short note on following : 9
      (i) Application of Computer
      (ii) Evolution of Computer
      (iii) Types of Computer

3. (a) Explain Memory Hierarchy in Detail. 8

(b) What do you mean by Sequential Access and Direct Access? 8

Unit–II

4. (a) What is a Port ? Explain with its Types. 8

(b) Difference between Serial Port, Parallel Port And USB Port. 8

5. (a) Difference between Single User and Multi User Operating System. 8

(b) Describe the term Real Time ? Explain Hard and Soft Real Time System with example. 8

Unit–III

6. (a) What are the two types of Errors in Computer Program ? Give example of each. 8

(b) Explain the term Program Design in Detail. 8

7. (a) List out advantages and limitations of Decision Table. 8

(b) Explain the difference between Top Down and Bottom up Approach in detail. 8

Unit–IV

8. (a) Explain Insertion sort and Bubble sort with Algorithm. 8

(b) Compare the Complexity of various Searching Techniques. 8

9. (a) What is a Compiler and why it is required ? 8

(b) Write the characteristics of a good Programming Language? 8

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BCA / D-19

WINDOWS AND PC SOFTWARE

Paper–BCA-112

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all, selecting **one** question from unit. **Question No. 1 is compulsory.***

(Compulsory Question)

1. (a) What is difference between Character User Interface and Graphics User Interface ?

(b) What are different way to run an Window Application ?

(c) Distinguish Workbook with Worksheet.

(d) Explain if, count, sum, round functions in Excel 4×4

Unit–I

2. Write notes on following :

(a) Recycle bin

(b) My Picture and My Music

(c) Start Menu and Desktop 16

3. (a) Describe the role of My Computer in Managing Files and Folders on Disk.

(b) Discuss Sound Recorder and Windows Media Player Entertainment Tools. Write Steps to Use them. 8,8

Unit–II

4. (a) How can you use Scanner, Web Camera and Printer ? Explain.

(b) Write Steps to Create and Delete Users in Windows. 8,8

5. What are the functions of Control Panel ? Explain steps to
   (a) Add New Hardware
   (b) Change Date and Time
   (c) Change Screen Saver and Wallpaper
   (d) Change Mouse Settings 16

Unit–III

6. (a) Discuss different data types in MS-Excel.
   (b) Discuss different commands available in Home Tab of MS-Excel. 8,8

7. (a) Write steps to freeze, Hide, Split and Merge Columns.
   (b) How you can format Text and numbers in Excel. 8,8

Unit–IV

8. (a) What do you mean by cell referencing ? Discuss relative and absolute addressing by taking examples.
   (b) Write steps to create column and pie chart by taking suitable example. 8,8

9. What is a purpose of Pivot Table and Pivot Chart in Excel ? Write steps to create Pivot table and Chart by taking example of your choice. 16

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BCA/D–19

MATHEMATICAL FOUNDATION–I

Paper–BCA-113

Time allowed : 3 hours] *[Maximum marks : 80*

Note** : Attempt **five** questions in all, selecting **one** question from each section. **Question No. 1 is compulsory.

1. (a) If $A = \{1, 2, 3, 4\}$

$B = \{2, 4, 6\}$,

$C = \{1, 2, 5\}$

$U = \{x : x \text{ is a positive integer} < 9\}$

then find

$(A' - B') \cap (B' - C')$ 4

(b) If $\frac{1}{9!} + \frac{1}{10!} = \frac{x}{11!}$; find x 3

(c) Find the derivative of $\tan^{-1}\left(\frac{\cos x}{1+\sin x}\right)$ w.r.t.x 3

(d) Prove that $y = A \cos x + B \sin x$ is a solution of the differential equation $\frac{d^2y}{dx^2} + y = 0$ 3

(e) Solve the differential equation

$$2\frac{d^3y}{dx^3} - 7\frac{d^2y}{dx^2} + 7\frac{dy}{dx} - 2y = 0$$ 3

Section–I

2. (a) In a class of 60 boys, there are 45 boys who play cards and 30 boys who play carrom. Also each boy like to play atleast one game. Use set operations to find :

(i) How many boys play both the games ?

(ii) How many play cards only ?

(iii) How many play carrom only ? 8

(b) If $A = \{1, 2, 3, 4\}$, $B = \{3, 4, 5, 6\}$,

$U = \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$

Verify that : (i) $A - B = A \cap B' = B' - A'$

(ii) $(A \cup B)' = A' \cap B'$ 8

3. (a) Let $A = \{1, 2, 3, ... , 45\}$ and R is a relation "is square of" in A. Write R as a subset of $A \times A$ and find domain and Range of R. 8

(b) How many arrangements can be made of the letter of the word "ARRANGEMENT". In how many of these the vowels are together ? 8

Section–II

4. (a) Using $\in - \delta$ definition, prove that

$$\lim_{x \to 2} \frac{x^2 - 4}{x - 2} = 4$$ 8

(b) If $y = \cos^{-1}\left[\frac{2\cos x + 3\sin x}{\sqrt{13}}\right]$; prove that

$$\frac{dy}{dx} = -1$$ 8

5. (a) If $e^x + e^y = e^{x+y}$; prove that $\frac{dy}{dx} = -e^{y-x}$ 8

(b) Differentiate $x^{\sin^{-1}x}$ w.r.t. $\sin^{-1}x$ 8

Section–III

6. (a) Find the differential equation of all the circles of radius a. 8

(b) Solve the differential equation

$$\left(1+y^2\right) dx = \left(\tan^{-1} y - x\right) dy$$ 8

7. (a) Solve the differential equation

$$\left(1+e^{x/y}\right) dx + e^{x/y}\left(1-\frac{x}{y}\right) dy = 0$$ 8

(b) Solve the following differential equation :

$$\left(xy^2 + 2x^2y^3\right) dx + \left(x^2y - x^3y^2\right) dy = 0$$ 8

Section–IV

8. (a) Solve the differential equation

$$\frac{d^2y}{dx^2} + y = \sin x \sin 2x$$ 8

(b) Solve the differential equation

$$\frac{d^2y}{dx^2} + 4y = x \sin x$$ 8

9. (a) Solve the differential equation

$$x\frac{d^3y}{dx^3} + \frac{d^2y}{dx^2} = \frac{1}{x}$$ 8

(b) Solve the differential equation

$$(x+1)^2 \frac{d^2y}{dx^2} + (x+1)\frac{dy}{dx} = (2x+3)(2x+4)$$ 8

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BCA/D–19

LOGICAL ORGANISATION OF COMPUTER–I

Paper–BCA-114

Time allowed : 3 hours] *[Maximum marks : 80*

Note** : Attempt **five** questions, selecting **one** question from each unit. **Question No. 1 is compulsory.

1. (a) Differentiate ordinary algebra and Boolean Algebra 4

(b) Solve using T.T.

(i) $\overline{a \cdot b \cdot c} = \bar{a} + \bar{b} + \bar{c}$

(ii) $(a + b) + c = a + (b + c)$ 4

(c) Define cyclic code and 8421 code 4

(d) What is condition of overflow and underflow in floating point notation 4

Total=16

Unit–I

2. (a) Perform as follows :

(i) $(X)_2 = 3AB7$ 2

(ii) $(11.625)_{10}$ → ( )$_2$
→ ( )$_8$ and back
→ ( )$_{16}$ 3

(iii) $(110\ 111\ 101)_2$ → ( )$_8$
→ ( )$_{16}$ 2

[Turn over

(iv) Register stores High, Low, High, Low, find number in Decimal, octal and Hexa Decimal. 3

(b) Write a note on 7-bit representation for ever detection and correction code 4

(c) Abbreviate ASCII, EBCDIC 2

Total = 16

3. (a) Use 2's compliment to solve

− 9	−32	− 7	+7
−10	+16	−19	+6

8

(b) Explain floating point representation. 8

Unit–II

4. (a) Define Boolean Algebra and write Postulates of Boolean Algebra. 10

(b) Solve using Boolean Algebra

(i) $(X+Y)(XZ+Z)\left(\overline{\overline{Y}+XZ}\right)=\overline{X}YZ$

(ii) $abc+\bar{a}bc+a\bar{b}c+ab\bar{c}$ 6

5. (a) Draw and label 4 variable K-Map and solve for four corners 8

(b) Solve using K-Map 8

$Z=\Sigma\ 1, 3, 5, 7$

$Z=\Sigma\ 0, 1, 10, 11, 15\ \&\ \underset{\phi}{\Sigma}\ 4, 5, 8, 14$

Unit–III

6. (a) Prove that NAND and NOR are universal gates. 4

   (b) Design 3 variable AND, NOR 4

   (c) Draw X NOR and XOR gates 4

   (d) Design $X = cd\left(\bar{a}b + a\bar{b}\right) + PQ\left(\overline{P}\,\overline{Q} + \overline{PQ}\right)$ 4

7. Explain design procedure for combinational circuit with example. 16

Unit–IV

8. (a) Design 4:1 Multiplexer

   (b) Make 8421 to 2421 code converter. 16

9. (a) Explain full-Adder using K-Map

   (b) Design 10 to 4 Line Encoder. 16

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BCA/D–19
COMMUNICATIVE ENGLISH
Paper–BCA-115

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all, selecting **one** question from each unit.*

Unit–I

1. Give a critical appreciation of "The Pleasures of Ignorance".

or

Comment on the title of the story "Grief". 16

2. (i) What does the exercise of the spirit, according to Gandhiji, depend on ?

or

What does Narayan say about admissions in our educational institutions ? 4

(ii) How was the new vicar different from the old one ?

or

How was the Old Bapu once, as a small boy, treated by the big boys ? 3

(iii) How did Ranji lose the "magic" bat ?

or

What did Mr. MacCallum accuse Mr. Macintosh of ? 3

(iv) Who was Holtz ? What type of man was he ?

or

Why did Gandhiji once lose his temper ? 3

(v) What is Major's advice to his comrades ?

or

What should animals never listen to ? 3

Unit–II

3. Read the passage and answer the questions that follow :

Avoiding the other players, Ranji walked slowly homewards, head down, hands in his pockets. He was quite upset. He had been trying so hard and practising to regularly, but when an important game came along he failed to make a big score. It seemed there was nothing he could do about it. But he loved playing cricket, and he couldn't bear the thought of being out of the school team.

(a) Name the story and its writer. 4

(b) What did Ranji do ? 3

(c) Why was he upset ? 3

(d) What was the cause of his disappointment ? 3

(e) What could he not bear ? 3

4. (a) As the Manager, Gretza Ltd., write an e-mail to your colleagues announcing an Employee Training Session giving all necessary details. 10

(b) Write a short note on text messages. 3

(c) Essentials of a Fax Message. 3

Unit–III

5. Attempt any sixteen sentences. Do as directed : 16

(a) Fill in the blanks with suitable articles :

(i) He was given ..... reward for his bravery.

(ii) Italy is ..... European country.

(iii) We stayed at ..... hotel in ..... centre of .....town.

(iv) There is ..... hourly bus service on this route.

(b) Fill in the blanks with suitable prepositions :

(i) The work must be finished ..... the end of the week.

(ii) You must attend ..... his instructions.

(iii) The train will depart ..... the other platform.

(c) Change the voice :

(i) She has eaten all the food.

(ii) They have just repainted our house.

(iii) These children broke the window pane.

(iv) My father bought a new car last year.

(d) Add tag questions to the following :

(i) She looks ill

(ii) He is very clever.

(iii) Few people knew the answer.

(e) Insert Comparative or Superlative degree of the words given in the brackets :

(i) When my brother was at school he was the ..... boy in his class. (clever)

(ii) The carpet was ..... than we excepted. (dear)

(iii) Which season is ....., summer or winter ? (hot)

(iv) This is by far the ..... of the two methods. (easy)

(f) Fill in the blanks with the correct forms of verbs :

(i) Here ..... the bride (come).

(ii) The workmen ..... the road near our house (repair).

(iii) ..... the floods still ..... ? (rise)

6. Write a paragraph on any *one* topic :

Internet Craze Mobile Phones Moral Education

Youth Festival Superstitions 16

Unit–IV

7. Write an application for the post of an Assistant Professor (Computer Science) in a college giving complete detail of your academic and professional qualification.

or

Write a letter to the Superintendent of Police inviting his attention to the increasing number of theft in your areas. 16

8. Write dialogues between :

a vegetable vendor and a customer

or

A bank manager and a customer

or

Two old friends talking over telephone. 16

Unit–V

9. Discuss the obligations and functioning of Public Information Officers. 16

or

10. Describe the functioning of Appellate Authorities of State Information Commission(s). 16

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BCA / D-19

PROGRAMMING IN 'C'

Paper–BCA-116

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all. **Question No. 1 is compulsory.** In addition to compulsory question, attempt **four** more questions selecting **one** question from each unit.*

Compulsory Question

1. (a) How are octal and hexadecimal integer constants represented ?

(b) Is WHILE loop exit controlled or entry controlled loop? Why?

(c) Is it necessary that loop counter only of Int data type ?

(d) What is the purpose of return statement ?

(e) List the advantages of Function.

(f) Which variable are given preference in function : Local or Global ? 4,2,2,2,4,2

Unit–I

2. Explain the structure of C Program. 16

3. Explain the various output functions available in 'C'. 16

Unit–II

4. Explain various IF statements available in 'C'. Give examples. 16

5. Explain unary, assignment and conditional operators available in 'C' giving examples. 16

Unit–III

6. (a) What rules are followed for nesting of loops ?

   (b) Write a program to sum the series $1 + x^3 + x^5 + x^7 + ... + x^n$ upto n terms. 6,10

7. (a) What is recursion ? When the recursive function stop calling itself?

   (b) Write a recursive function to reverse a string. 8,8

Unit–IV

8. (a) Explain with example Register storage class.

   (b) Explain How array is passed to Function ? 8,8

9. (a) How two dimensional array is declared, initialized and referenced ?

   (b) Write a program to find sum of diagonal elements of a square matrix. 6,10

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BCA / D-19

OBJECT ORIENTED PROGRAMMING USING C++

Paper–BCA–231

Time allowed : 3 hours] *[Maximum marks : 80*

Note :- *Attempt **five** questions in all, selecting one question from each unit in addition to **compulsory question No. 1.***

Compulsory Question

1. (a) How private member function is declared and accessed?

(b) Give hierarchy of C++ stream classes.

(c) What is difference between '.' and '$\longrightarrow$' operator?

(d) Briefly explain use of *this* pointer. 4×4=16

Unit–I

2. (a) What are drawbacks in Procedural Oriented Programming? Explain object oriented paradigm. 16

3. (a) What are static data members? How they are declared and defined?

(b) How static member functions are declared, defined and called? 8,8

Unit–II

4. What are constructors? Explain different type of constructors giving example. 16

5. Explain various ios class functions and flags used for formatting console I/O. 16

Unit–III

6. Write a program to add two matrices by passing object as arguments and returning object. 16

7. What are the operators for dynamic memory management? Explain giving examples.

Unit–IV

8. What are the operators available in C++? Give their hierarchical precedence and associativity. 16

9. (a) What is function overloading? What are the rules of function overloading?

   (b) Write a program to find area of circle, area of rectangle and area of triangle using function overloading. 8,8

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BCA / D-19
DATA STRUCTURES
Paper–BCA-232

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *A candidate will be required to answer **five** questions in all, selecting **one question from each unit** in addition to compulsory **Question No. 1.** All questions carry equal marks.*

Compulsory Question

1. (a) What is algorithm complexity ? Give brief overview. 4
   (b) Differentiate between array and linked list. 4
   (c) What are the differences between stack and queue ? Explain. 4
   (d) What is the difference between general tree and binary tree? Explain. 4

Unit–I

2. Define Data Structure. Explain various types/categories of data structures with suitable examples. 16

3. (a) Explain various types of data structure operations. Give suitable examples also. 8
   (b) Define string. Explain various types of string operations. 8

Unit–II

4. How 1-D and 2-D arrays are stored in the main memory of the computer ? Elaborate on traversing linear array with suitable example. 16

5. Explain the representation of linked list in main memory of the computer. Elaborate on the concept of insertion and deletion of an element in one-way linked list with suitable example. 16

Unit–III

6. Explain various operations on stack along with suitable examples. 16

7. Explain array and linked representation of queue with suitable examples. 16

Unit–IV

8. Explain the concept of traversing binary tree with suitable examples. 16

9. Define graph. Explain sequential and linked representation of graph in the main memory along with suitable examples. 16

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BCA / D-19
COMPUTER ARCHITECTURE
Paper–BCA-233

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *A candidate is required to answer **five** questions in all, selecting **one** question from each unit in addition to compulsory **Question** No. 1. All questions carry equal marks.*

(Compulsory Question)

1. (a) What is instruction ?

(b) What is Software Interrupt ?

(c) Define Micro-operation.

(d) What is a Micro-Program ?

(e) What are basic operations of stock ?

(f) What are functions of Input-Output Interface ?

(g) What is Memory Hierarchy ?

(h) Name two auxiliary memory. 8×2=16

Unit–I

2. (a) Explain various Computer Registers. 8

(b) Explain Architecture of Accumulator Logic. 8

3. (a) What is the role of Timing and Control Signals in Micro-operations ? 8

(b) Explain various Memory Reference Instructions. 8

Unit–II

4. (a) Explain with diagram hardware implementation of Arithmetic Micro-operations. 8

   (b) Explain hardware implementation of Shift Micro-operations. 8

5. Explain :

   (a) Three State Bus Buffer

   (b) Register Transfer Language 2×8=16

Unit–III

6. Write various addressing modes with suitable examples. 16

7. (a) Differentiate between RISC and CISC. 10

   (b) What is Program Interrupt ? Explain with example. 6

Unit–IV

8. Write note on :

   (a) Input-Output Processor

   (b) Priority Interrupt 2×8=16

9. Explain following in brief :

   (a) Virtual Memory

   (b) Interleaved Memory

   (c) Cache Memory

   (d) Associative Memory 4×4=16

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BCA / D-19

SOFTWARE ENGINEERING

Paper–BCA– 234

Time allowed : 3 hours] *[Maximum marks : 80*

Note :- Attempt five questions in all, selecting one question from each unit in addition to compulsory Question No.1.

Compulsory Question

1. (a) What are the limitations of Waterfall model?
   (b) What are the advantages of prototype model?
   (c) What problem arise if two modules have high coupling?
   (d) What is the difference between verification and validation? 4×4=16

Unit–I

2. (a) Describe Iterative Enhancement model.
   (b) In what situation Iterative enhancement model is used? (12,4)
3. (a) What is software crisis? What are the reasons for software crisis?
   (b) Explain the term software metric. (8,8)

Unit–II

4. What are the activities performed in requirement process? Briefly explain them. 16
5. Explain the characteristics of SRS. 16

Unit–III

6. (a) What is DFD? What are symbols used for drawing DFD? Explain the rules of drawing DFD.

   (b) Data Dictionary is called structured repository of data. Explain. (9,7)

7. What is software maintenance? Describe various types of maintenance. Which type requires maximum effort and why? 16

Unit–IV

8. How the Scheduling of project is done? Briefly explain overall and detailed scheduling. 16

9. Explain the various levels of testing. 16

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BCA / D-19

FUNDAMENTALS OF DATA BASE SYSTEMS

Paper–BCA-235

Time allowed : 3 hours] *[Maximum marks : 80*

Note : ***Question No. 1 is compulsory.*** *In addition to that attempt* ***four*** *more questions, selecting exactly* ***one*** *question from each unit. All questions carry equal marks.*

Compulsory Question

1. (a) What is the need of database ?
   (b) Name various users of DBMS.
   (c) Define participation constraints
   (d) Define secondary key
   (e) Define degree of a relationship
   (f) Define data dictionary.
   (g) What is the need of data management ?
   (h) Define Attribute and Tuple. 2×8=16

Unit–I

2. What is DBMS ? Explain various components of DBMS in detail. 16

3. (a) What is the role of a DBA ? Explain. 8
   (b) How data base approach is better than file processing system? Differentiate the both. 8

Unit–II

4. Explain three-level architecture of database along with mappings between the levels. 16

5. How Database management system can be classified ? Explain in detail. 16

Unit–III

6. Compare Hierarchical, Network and Relational models. 16

7. Draw an E-R diagram for a Banking system taking your own assumptions. 16

Unit–IV

8. What is a relational model ? How a relational model is better than hierarchical and network models ? Explain. 16

9. (a) Explain the concept of referential integrity constraint with an example. 8

   (b) Define the following terms :

   (i) Super key

   (ii) Candidate key

   (iii) Alternate key

   (iv) Relationship 8

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BCA/D–19

COMPUTER ORIENTED NUMERICAL METHODS

Paper–BCA-236

Time allowed : 3 hours] *[Maximum marks : 80*

***Note** : Attempt **five** questions in all, selecting **one** question from each unit. **Question No. 1 is compulsory.** All questions carry equal marks.*

(Compulsory Question)

1. (a) The approximate value of e is 2.708112 and the true value is 2.708337, find absolute, relative and percentage errors in it. 3

(b) Determine order of convergence of regula falsi method. 3

(c) Determine the initial approx. value for finding root of equation $x^3 - 3x^2 + x - 2$? 2

(d) State predictor corrector formula for solving differential equation. 2

(e) Establish the relationship between Δ, ∇ and E (shift) Interpolation operators. 3

(f) Find difference table (1, 6), (2, 9) (3, 15), (4, 27) and (5, 45) Using divided difference operator ? 3

Unit–I

2. Solve equation $x^3 - 9x + 1 = 0$ by using :

(i) False position method

(ii) Bisection method

upto accuracy 3 decimal places. 8,8

3. (a) Using Bairstow's method, obtain a quadratic factor of polynomial

$f(x) = x^3 - 2x^2 + x - 2.$ 8

(b) Find the value of $(5)^{1/3}$ using Newton Raphson method accuracy upto 3 decimal places. 8

Unit–II

4. (a) Using Gauss Seidal method using initial vector [0,0, 0], solve the system of equations i.e.,

$$10x + y + z = 12$$

$$2x + 10y + z = 13$$

$$x + y + 5z = 7$$ 8

(b) Using Taylor's series method, compute the value of y (0, 2) correct to 3 decimal places for differential equation

$$\frac{dy}{dx} = 1 - xy \text{ given that } y(0) = 0.$$ 8

5. (a) Using Gauss Elimination method, solve

$$20x + y - 2z = 17$$

$$3x + 20y - z = -18$$

$$2x - 3y + 2z = 25$$ 8

(b) Find the value of $y(1.1)$ using Runge Kutta method of 4th order for given equation

$$\frac{dy}{dx} = y^2 + xy \; ; \; y(1) = 1.$$ 8

Unit–III

6. (a) Given the distribution

x	0	1	2	3	4
y(x)	3	12	81	200	100

Find $\Delta^4 y(0)$. 8

(b) Using Langrange's interpolation formula for unequal interval, find f(2) for distribution :

x	0	3	5
f(x)	1	11	27

8

7. (a) By using Newton Gregory forward interpolation formula, find f(x) for x = 1.2 for table :

x	0	2	4	6	8
y(x)	0.756	1.421	2.125	2.865	3.426

8

(b) Using Newton's divided difference formula, find the interpolating polynomial for data :

x	0.0	0.1	0.3
f(x)	−0.5	0.0	0.2

Unit–IV

8. (a) Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ for the function tabulated below at x = 1.5 i.e., table is 8

x	1.5	2.0	2.5	3.0	3.5	4.0
f(x)	3.375	7.0	13.625	24.0	38.875	59.0

(b) Evaluate $\int_0^1 \frac{x^2}{1+x^3}\,dx$ using Simpson's $\frac{1}{3}$ rd rule with h = 0.25 ! 8

9. (a) Evaluate $\int_0^1 \frac{dx}{1+x^3}$ using Gaussian Quadrature formula for two points. 8

(b) Interpret Simpson's $\frac{3}{8}$ th rule geometrically. Compare with Simpson's $\frac{1}{3}$ rd rule and compare accuracy of both ? 8

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BCA/D–19

WEB DESIGNING FUNDAMENTALS

Paper–BCA-351

Time allowed : 3 hours] *[Maximum marks : 80*

***Note** : Attempt **five** questions in all, selecting **one** question from each unit. **Question No. 1 is compulsory.** All questions carry equal marks.*

(Compulsory Question)

1. (a) Define hypertext and hyperlink with example. 3

(b) Differentiate a web address and an email address. 3

(c) How would you wrap text around an image ? 3

(d) How would you create frames in HTML ? 3

(e) How would you post your article in a news group ? 2

(f) Describe the process of hiding and showing scroll bars. 2

Unit–I

2. (a) Explain the concept of addresing on Internet i.e., IP address, Web address etc. 8

(b) Elaborate the need and function of a search engine. 8

3. Explain :

   (a) WWW browsers

   (b) Internet Surfing

   (c) HTTP

   (d) Domain Name Space (DNS) 4×4

Unit–II

4. Define a web page, a home page and a web site. How web page works with give URLs ? 8,8

5. (a) Explain internal structure of a web browser. 6

   (b) Name any two Internet service providers and services provided. 4

   (c) Write steps for designing a website. 6

Unit–III

6. Write the function of following HTML tags :

   (i) < H1 > to < H6 > (v) < BG Color >

   (ii) < TITLE > (vi) < table >

   (iii) < HREF > (vii) < base front >

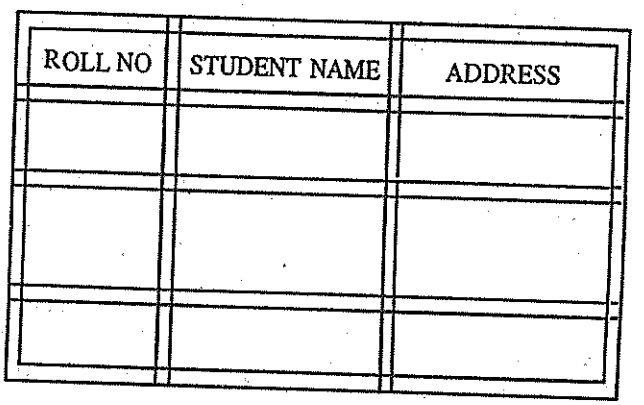
   (iv) < COL > (viii) < marquees > 2×8

7. (a) Write a short note on filtering and sorting of data in HTML. 8

   (b) Explain attributes used in < font > for formatting text, paragraph and color of text. Give one example of each. 8

Unit–IV

8. (a) Write a program in HTML to create a table containing 4 rows and 3 columns i.e., 8



(b) Describe linking of pages in HTML i.e., linking to local pages, to other part of the same page using graphics, images and FTP services. 8

9. What is an HTML form ? How will you create it ? Explain how data can be send decodes and used from it ? 16

25-11-2019

Roll No. .....
Printed Pages : 2

1203

BCA / D-19
OPERATING SYSTEM–I
Paper–BCA-352

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt any **five** questions. Select **one** from each unit. **Q. No. 1 is compulsory.***

1. (a) Differentiate Multiprogramming versus multiprocessing.
(b) Abbreviate
FCFS, SJF, LRU, ISAM
(c) Differentiate Internal and External fragmentation.
(d) Name 4 Types of file. 4×4=16

Unit–I

2. Define operating system and its types. Differentiate Single user and Multi-user operating systems. 16

3. Write note on :
(a) Batch Processing
(b) System Call
(c) Device Manipulation
(d) Time Sharing 16

Unit–II

4. (a) Define Process and PCB
(b) Discuss Scheduler and context switch
(c) Define Process Termination
(d) What is Threading ? 16

5. Define Pre-emptive and Non-pre-emptive Scheduling. Also explain CPU Scheduling algorithms. 16

Unit–III

6. Define Segmentation. Explain Hardware implementation of Segmentation. Write its advantages. 16

7. Explain concept of Deadlock, its detection and avoidance of Deadlock. 16

Unit–IV

8. Define Demand Paging, Explain LRU and optimal page replacement algorithms. 16

9. Write note on :
   (a) Naming a file and its attributes with 4 operations.
   (b) File Recovery and Protection. 16

28-11-2019

Roll No. .....
Printed Pages : 2

1204

BCA / D-19

ARTIFICIAL INTELLIGENCE

Paper–BCA-353

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all selecting at least **one** question from each section. **Question No. 1 is compulsory.** All questions carry equal marks.*

1. (a) Define Meta Knowledge 3
   (b) Name the personnel involved in expert system Development. 2
   (c) Define Forward Chaining Approach 3
   (d) Write the features of MYCIN 3
   (e) Give two examples of Mean-End Analysis. 2
   (f) Write Applications of mobile robot. 3

Unit–I

2. How Artificial Intelligence can be defined ? Is Turing test relevant to Modern A.I. ? 16

3. Define Problem representation in Artificial Intelligence. What are the different methods of Problem representation in A.I. ? 16

Unit–II

4. Explain in detail the features of an expert system. 16

5. Describe various stages of expert system development. 16

Unit–III

6. Explain Best First search by using example. Write the Algorithms of it too. 16

7. Write short notes on :
   (a) AO* Algorithm
   (b) Breadth First Search 16

Unit–IV

8. What are the goals of Natural language processing ? Explain fundamental problems in natural language understanding by using example. 16

9. What is a Robot ? What are the essential characteristics of a Robot ? 16

4-12-2019

Roll No. .....
Printed Pages : 2

1205

BCA / D-19

COMPUTER NETWORKS

Paper–BCA-354

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all, selecting at least **one** question from each unit. **Question No. 1 is compulsory.** All questions carry equal marks.*

Compulsory Question

1. (a) What do you mean by Gateways ?
(b) Define PC Cards.
(c) What do you mean by Baud Rate ?
(d) Write short note on Switching.
(e) What is ALOHA ?
(f) What do you mean by Token BUS ?
(g) What is Digital Certificate ?
(h) What do you mean by flooding ? 8×2=16

Unit–I

2. (a) Explain Networking Models. 8
(b) What are various Network Design Issues. 8

3. Explain the following : 16

(a) Repeaters
(b) Connectors
(c) Bridges
(d) Routers

Unit–II

4. What are various Multiplexing Techniques ? Explain. 16

5. Explain various available wireless Transmission Media. 16

Unit–III

6. What do you mean by Networking Protocols ? Explain sliding window protocols. 16

7. (a) What is CSMA ? Discuss. 8

   (b) What are collission Free Protocols, Explain ? 8

Unit–IV

8. Explain link State Routing and Hierarchical Routing. 16

9. How security is performed in Networks ? Explain various types of existing security attacks and their remedies in networks. 16

9-12-2019

Roll No. .....
Printed Pages : 2

1206

BCA / D-19

PROGRAMMING USING VISUAL BASIC

Paper–BCA-355

Time allowed : 3 hours] *[Maximum marks : 80*

*Note : **Question No. 1 is compulsory.** Attempt **four** more questions by selecting at least **one** question from each section. All questions carry equal marks.*

Compulsory Question

1. (a) Explain Properties and Immediate window in Visual Basic. 4

   (b) Write various steps to create a Visual Basic Program. 4

   (c) What is an Array ? Define an Array of Arrays in Visual Basic. 4

   (d) What is a function and how to call a function in Visual Basic? 4

Section–I

2. Explain Visual and Non-Visual Programming, Procedure-oriented and object-oriented programming in detail. 16

3. Explain various editions of Visual Basic and also define various applications of Visual Basic. 16

Section–II

4. Explain various data types available in Visual Basic in detail. 16

5. Explain various operators used in Visual Basic in detail. 16

Section–III

6. Explain any four looping statements in Visual Basic. 16

7. Explain static and dynamic arrays in details with example. 16

Section–IV

8. What is a procedure and explain its advantages ? Explain how to call a subroutine in Visual Basic with suitable examples. 16

9. (a) Write a program to find HCF and LCM of two given numbers. 8

   (b) Write a program to find greatest among N numbers. 8

Roll No. .....
Printed Pages : 2

12-12-09

1207

BCA / D-19

MULTIMEDIA TOOLS

Paper–BCA-356

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt **five** questions in all, selecting **one** question from each unit. **Question No. 1 is compulsory.***

Compulsory Question

1. (a) What is the Applications of Multimedia in the Hospital ?

(b) Differentiate Raster and Vector Image.

(c) How the conventional TV is different from HDTV ?

(d) With the help of example explain Huffman coding of data compression. 4×4

Unit–I

2. Discuss role of multimedia in Business, Marketing, Entertainment, Bank and Publishing Industry. Use suitable examples of each field. 16

3. Discuss different Multimedia Software Tools. 16

Unit–II

4. Explain various Color Models in Images and Video. 16

5. Discuss following Digital Video Standards : 16

(a) Chroma Subsampling

(b) CCIR

Unit–III

6. What is MIDI ? What you can do with MIDI ? Explain structure of MIDI message. 16

7. What do you understand by coding of audio ? Explain different steps to code Analog Data to Digital Data using Pulse Code Modulation (PCM) Encoder. 16

Unit–IV

8. (a) Explain Transform Coding with example.
   (b) Discuss JPEG standard for Image Compression. 8,8

9. Discuss following Video Compression Techniques :
   (a) H.261
   (b) H.263
   (c) MPEG 5,6,5