19COA101   Reg. No.................................

CHOICE BASED CREDIT SYSTEM FIRST SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
COMPUTER APPLICATIONS
FUNDAMENTALS OF COMPUTERS

Duration: 3 Hrs.   Max. Marks: 80

PART – A

1. Answer any TEN questions from the following: 10×2=20

    a) Mention the components of a Computer System.

    b) What are registers?

    c) Expand EEPROM and SRAM.

    d) What is a Ram memory?

    e) What is the use of secondary storage device?

    f) Define memory access time.

    g) What is seek time?

    h) What is a Compact Disk?

    i) Define MIS.

    j) What is a computer program?

    k) Define flow chart?

    l) What is a complier?

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a) Explain any five characteristics of Computer.
    b) Explain the different classification of Computers.   (5 + 5)

3. a) Explain Cache memory.
    b) Write a note on Instruction cycle.   (5 + 5)

4. a) Explain the three fundamental types of memory in computer system.
    b) Write a note on memory hierarchy.   (5 + 5)

UNIT – II

5. a) Write the advantages and disadvantages of magnetic tapes.
    b) Explain the storage organization of optical disk.   (4 + 6)

6. a) What is OMR? How does an OMR work?

b) Explain the three types of memory stick. (5 + 5)

7. a) How does a Keyboard work?

b) Explain any three types of operating system. (4+6)

UNIT – III

8. a) Explain the three categories of programming languages.

b) What are the common functions of system utilities. (5 + 5)

9. a) Explain the features of a good programming language.

b) What is an application software? Explain any two commonly used application software. (5 + 5)

10. a) What are the basic requirements for getting connected to internet?

b) Explain the role of MIS as a control system. (5 + 5)

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19COA102

CREDIT BASED FIRST SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
COMPUTER APPLICATION
BASIC CONCEPTS OF PROGRAMMING IN 'C'

Duration: 3 Hrs.   Max. Marks: 80

PART – A

1.   Answer any TEN questions from the following: 10×2=20

   a) List any two features of 'C' program.

   b) Differentiate between a variable and symbolic name. Give an example for each.

   c) Write the C equivalent statement for the following:

   i) $z = \frac{a+b}{a-b}$ ii) $y = \frac{a^2+b}{2}$

   d) What are backslash character constants? List any two backslash character constants in C.

   e) Rewrite the following if...else statement using conditional operator.

   if $(a > b)$
      max = a;
   etc
      max = b;

   f) Write equivalent while loop for the given loop:

   $for(i = 1; i <= 5; i++)$

      $printf("\%d",i);$

   g) What is the significance of 'break' in C programming?

   h) How do you declare one dimensional array? Give an example.

   i) What is the differences between scanf( ) and gets( ) while reading strings.

   j) Define recursion. How is it different from other functions?

   k) What do you mean by scope and lifetime of a variable?

   l) What is a union? How is it different from structure?

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2.   a) Explain the basic structure of C program.

   b) Explain increment and decrement operators with examples.   (5 + 5)

3.   a) With suitable examples, explain arithmetic and relational operators in C.

b) What do you mean by operator precedence and associativity? Evaluate the following expression. Assume x = 2 and y = 6

   i) $M = + + x * y$ ii) $N = x + y/2$ (6 + 4)

4. a) List and explain the basic data types in C.

   b) Explain any five mathematical functions in C.   (5 + 5)

UNIT – II

5. a) Explain simple if and nested if statement with examples.

   b) With an example, explain switch statement.   (6 + 4)

6. a) Explain with syntax and example for, for loop and while loop.

   b) Write a program to arrange 'n' numbers in ascending order.   (5 + 5)

7. a) What is an array? Explain how a two – dimensional array is declared and initialized.

   b) Write a C program to generate N Fibonacci numbers.   (4 + 6)

UNIT – III

8. a) Write a note on call by value and call by reference.

   b) Explain any three string functions with syntax and example for each.   (4 + 6)

9. a) Explain any three categories of user defined function.

   b) Explain state and extern storage classes.   (6 + 4)

10. a) What is a structure? Explain how do you define and manipulate structure variables in C with suitable example.

   b) Write a note on macros.   (6 + 4)

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19COA103

Reg. No. ....

CHOICE BASED CREDIT SYSTEM

FIRST SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019

MATHEMATICS

PAPER I: FUNDAMENTALS OF MATHEMATICS I

Duration: 3 hours

Max Marks: 80

Note: 1. Answer any SIX questions in Part A. Each question carries 2 marks.
2. Answer FOUR full questions from Part B choosing ONE full question from each unit.

PART A

6x2=12

1. a) Expand $(a+b)^6$

b) Solve for x given $\begin{vmatrix} x & 1 \\ 2 & 3 \end{vmatrix} = 0$

c) Convert $\dfrac{5\pi}{12}$ into degree measure.

d) Find the value of $\sin 30^\circ + \cos 60^\circ$

e) If the centroid of a triangle is (3,2) and two of the vertices are $(-3,4)$ and $(0,2)$ find the third vertex.

f) Find the slope of the straight line having equation $2x-3y+5=0$

g) Find the centre and radius of the circle $x^2 + y^2 + 6x - 4y + 4 = 0$

h) Define parabola.

PART - B

UNIT-I

2. a) Resolve $\dfrac{10x^2 + 9x - 7}{(x+2)(x^2 - 1)}$ into partial fractions. (6)

b) Solve: $2x + 3y = 5$, $x + 5y = 13$ by using Cramer's rule. (5)

c) Find the middle term in the expansion of $\left(2x^3 - \dfrac{1}{x}\right)^{12}$ (6)

3. a) Resolve $\dfrac{x}{(x+1)(x-2)}$ into partial fractions. (6)

b) Solve: $2x - y = 10$, $x - 2y = 2$ by using matrix method. (5)

c) Show that $\left(2+\sqrt{3}\right)^5 + \left(2-\sqrt{3}\right)^5 = 724$ (6)

UNIT-II

4. a) Prove that $\dfrac{\sec\theta - \cos ec\theta}{\sec\theta + \cos ec\theta} = \dfrac{\tan\theta - 1}{\tan\theta + 1}$ (5)

b) Prove that $\tan 315^\circ \cot(-405^\circ) + \cot(495^\circ)\tan(-585^\circ) = 2$ (6)

c) Prove that $\dfrac{\tan(180+\theta)\sec(180-\theta)\cos ec(90+\theta)}{\sec(360-\theta)\cot(90+\theta)\sin(90-\theta)} = \sec^2\theta$ (6)

5. a) Prove that $\sqrt{\dfrac{1-\sin A}{1+\sin A}} = \sec A - \tan A$ (6)

   b) If $\sec\alpha = \dfrac{13}{5}$, α is acute find $\dfrac{2\sin\alpha - 3\cos\alpha}{4\sin\alpha - 9\cos\alpha}$ (5)

   c) Find x if $x\sin 30° \cos^2 45° = \dfrac{\cot^2 30° \sec 60° \tan 45°}{\cos ec^2 45° \cos ec 30°}$ (6)

UNIT-III

6. a) Verify that points (2,2) (−1,2) and (2,5) are the vertices of an isosceles triangle and also find its perimeter. (6)

   b) Find the ratio in which the line joining (2,4) and (3, −7) is divided by x axis. (5)

   c) Find the acute angle between the lines $2x + y = 5$ and $3x - y = 5$. (6)

7. a) show that $A(4,1)$, $B(7,4)$ and $C(13,-2)$ are the vertices of a right angled traiangle. (5)

   b) Find the area of the quadrilateral formed by the points (1,1), (3,4), (5, −2) and (4, −7) (6)

   c) Find the equation of the line perpendicular to $3x + 4y - 1 = 0$ and passing through (1, −2) (6)

UNIT-IV

8. a) Find the equation of the circle centered at the origin and touching the line $3x + 4y - 5 = 0$ (6)

   b) Find the end points of the latus rectum and the equation of the directrix of the conic $y^2 = 4x$ (5)

   c) Find the centre, foci, vertices of the hyperbola $\dfrac{x^2}{4} - \dfrac{y^2}{16} = 1$ (6)

9. a) Find the centre, radius, area of the circle $2x^2 + 2y^2 + 4x - 6y - 7 = 0$ (6)

   b) Find the vertex, directrix, and end points of the latus rectum of the parabola $x^2 = 16y$ (5)

   c) Find vertices, lengths of axes, and eccentricity of the ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{9} = 1$ (6)

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Reg. No..............................

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
OBJECT ORIENTED PROGRAMMING CONCEPTS AND PROGRAMMING USING JAVA

Duration: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any 11 questions from the following: 11×2=22

    a) Define Class.

    b) What are Java tokens? Give Examples.

    c) Mention the two methods to create threads.

    d) Define inheritance.

    e) What is the use of final class?

    f) State any two features of constructor.

    g) Give the syntax of for loop.

    h) Expand UML & UA.

    i) How do you pass parameters to applets?

    j) What is the difference between local variable & global variable.

    k) Define local applet and remote applet.

    l) What is the use of finally keyword in java?

    m) How do you access java system packages?

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a) Explain if ..else..if ladder statement with syntax and example.   (5)

    b) Explain any five Java statements.   (5)

    c) Explain increment and decrement operators.   (3)

3. a) How does object oriented approach differ from traditional approach.   (5)

    b) Explain the data types available in java.   (4)

    c) List and explain relational and logical operators.   (4)

4. a) Explain the concept of object behavior and methods   (5)

    b) Explain labeled loops with the help of an example.   (4)

    c) What are separators? Explain.   (4)

UNIT – II

5. a) What is a constructor? Illustrate with an example.   (5)

    b) Define an array. How do you declare and initialize two dimensional array?   (4)

    c) Explain the use of 'super' keyword with an example.   (4)

6. a) What are the various access modifiers available in java? Explain.   (4)

    b) How do you create an user defined package. Explain with the help of an example.   (5)

    c) Explain 'nesting of methods' with the help of an example.   (4)

7. a) Explain any five string methods with examples.   (5)

    b) Define vector. Explain any three vector methods.   (4)

    c) What are the various ways of implementing interface.   (4)

UNIT – III

8. a) Explain how threads can be created by implementing the runnable-interface   (5)

    b) How do you get an input from the user in an applet.   (5)

    c) Write a note on thread priority.   (3)

9. a) With a neat diagram explain the life cycle of a thread.   (8)

    b) Write a note on applet tag.   (5)

10. a) What is an exception? Explain exception handling mechanism.   (5)

    b) State the difference between applets and stand alone applications.   (4)

    c) Explain the purpose of synchronization.   (4)

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COA 301.1   Reg. No. ....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
B.C.A
OBJECT ORIENTED PROGRAMMING CONCEPTS & PROGRAMMING USING C++
Time: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any ELEVEN questions from the following: 11×2=22

   a. Why do we need object oriented programming?
   b. Write the syntax of output statement of C++.
   c. What do you mean by layered architecture in software development?
   d. What is Function prototyping? Give an example.
   e. What are const arguments? Give an example.
   f. What are pre-class protection and per-object protection?
   g. When do we make a class virtual?
   h. What do you mean by nesting of member function?
   i. List any two operators which can not be used for overloading.
   j. How does private and protected visibility differs?
   k. Write any two characteristics of constructor.
   l. Differentiate between compile time and run time polymorphism.
   m. When do we need a destructor? Define destructor for a class named String.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. What are manipulators? Explain any '4' manipulators with syntax and example.
   b. Differentiate object oriented approach and traditional top-down approach.
   c. Explain the following with example.
      i) object   ii) attribute   iii) methods   (5+5+3)

3. a. Explain any five characteristics of object oriented programming.
   b. Explain   i) use case modeling   ii) use case diagrams
   c) What is inheritance? Explain its role in re-usability?   (5+4+4)

4. a. Explain how objects responds to messages?
   b. What are the orthogonal views of software?
   c) Explain object oriented system development methodology.   (5+4+4)

UNIT – II

5. a. When do we declare data member as static? Explain with example.
   b. What is a class? Explain with syntax and example, how a class in defined.
   c. What is function overloading? Explain with example.   (3+5+5)

6. a. What are the different ways of defining member functions in a class? Explain with example.
   b. Explain how memory allocation is done for objects.
   c. What are friend functions? Write any three characteristics of it.   (5+4+4)

7. a. What are inline functions? Explain with example.
   b. Explain   i) call by reference   ii) call by value
   c. Write a program to find the addition and subtraction of '2' complex numbers.   (4+4+5)

UNIT – III

8. a. What is constructor? Explain any two types of constructors with example.
   b. Explain with example, overloading binary operator using friend function.
   c. With an example, explain dynamic initialization of objects.   (5+5+3)

9. a. What is operator overloading? Explain how operator function is defined with syntax and example.
   b. Write a note on virtual function.
   c. Explain constructor with default arguments.   (5+4+4)

10. a. Explain the usage of 'this' pointer with example.
    b. Explain the concept of conversion between basic types to class type.
    c. What is single inheritance? Explain with syntax and example.   (4+5+4)

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CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
INTERNET PROGRAMMING

Duration: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any 11 questions from the following: 11×2=22

    a) Write the structure of an HTML document.

    b) What is a web browser? Give two examples.

    c) What is FTP? Why is it used?

    d) Write the syntax of Frame tag.

    e) Mention the purpose of host name in location object.

    f) Explain any two events in Javascript.

    g) Write the syntax of switch statement.

    h) What is an array? How do you define an array in javascript.

    i) Define constants. How do you declare constants in VB script.

    j) What are the advanctages of style sheets.

    k) Mention any 4 form controls.

    l) What is the purpose of <BR> and <HR> tags?

    m) Write any two naming rules of XML.

PART – B
Answer any TWO full questions from each unit:

UNIT – I

2. a) How do you insert picture to the web page with the specified size and alignment? Explain.

    b) Explain with examples the different types of lists available in HTML.

    c) Explain the purpose of <TEXTAREA> tag with an example.   (4+6+3)

3. a) Explain any five properties of document object in javascript

    b) Explain any two looping statements in javascript.

    c) Explain with example any three mathematical functions used in javascript.   (5+5+3)

4. a) With suitable example, explain if – else statement in javascript.

    b) With an example explain the 4 string functions in javascript.

    c) What are variables? How do you declare variables in javascript? Differentiate between local & global variables   (5+4+4)

UNIT – II

5. a) Explain any 5 date functions in VB Script.

   b) With suitable examples, explain the logical operators in VBscript.

   c) How do you add VBScript in HTML page. Give an example. (5+5+3)

6. a) Explain the working of do while and do until loops in VBScript with syntax and examples.

   b) What are the different data types available in VBScript. Explain.

   c) Write a VBScript program to display the sum of first 10 natural numbers. (6+4+3)

7. a) What are sub procedures in VBScript? How do you define a sub procedure? Explain with an example.

   b) With syntax and example, explain select statement in VBScript.

   c) Explain the relational operators in VBScript. (6+4+3)

UNIT – III

8. a) What are style sheets? Explain 3 ways of creating styles.

   b) Explain any four font style properties.

   c) How do you define and use Ids in style sheet. (6+4+3)

9. a) What is the difference between XML, Schema and DTD?

   b) Explain the following properties of style sheets.

      i) border style   ii) background – repeat   iii) font – weight iv) text indent.

   c) Explain the XML structure with an example. (5+4+4)

10. a) Explain style classes with example.

    b) What is DTO? Explain with an example.

    c) Write a note on XML objects. (5+5+3)

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Duration: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30

    a) Define operating system. Give one example.

    b) Which are the two flavors of Real Time system ?

    c) Define Process state.

    d) What are the activities in connection with file management?

    e) What is the role of CPU scheduler?

    f) Define thread?

    g) List any two benefits of thread.

    h) What is a dispatcher?

    i) Differentiate between preemptive and non preemptive scheduling.

    j) What do you mean by race condition ?

    k) Define binary semaphores.

    l) Write the definitions for wait( ) and signal ( ) operations.

    m) What is starvation. ?

    n) Write any four attributes of a file.

    o) Define Paging.

    p) Write a note on circular – wait.

    q) Define the terms Best Fit and Worst Fit.

    r) Differentiate between logical and physical address space.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a) With a neat diagram, explain process scheduling using queuing diagram.

    b) Explain the different operating system services.   (7+8)

3. a) Draw the block diagram of PCB and explain its components.

    b) Write a note on co-operating process.   (8+7)

4. a) What are the major activities of an operating system with regard to:

       i) Process Management.

       ii) Memory Management.

    b) Write a short note on the following operating system: (7+8)

i) Multi programming system   ii) Time shared system.

UNIT – II

5. a) Explain the necessary conditions for deadlock prevention.

   b) Explain the different CPU scheduling criteria.   (8+7)

6. a) Consider the following snap shot of a system

Allocation	Max	Available
A B C D	A B C D	A B C D
P0 0 0 1 2	0 0 1 2	1 5 2 0
P1 1 0 0 0	1 7 5 0	
P2 1 3 5 4	2 3 5 6	
P3 0 6 3 2	0 6 5 2	
P4 0 0 1 4	0 6 5 6	

   Answer the following questions using Bankers algorithem.
   i) What is the content of the Matrix Need?
   ii) Is the system in a safestate?
   iii) If request (0,4,2,0) from process P_1 arrives, can the request be granted
   immediateiy.

   b) Explain with example the following CPU scheduling algorithms :   (7+8)

   i) Shortest job first

   ii) Round Robin

7. a) Which are the two methods of deadlock recovery? Explain them.
   b) Compute average waiting time using Priority scheduling and round robin with time
   quantum of 5 milliseconds for the data given below :   (7+8)

Process	Burst Time	Priority
P0	12	2
P_1	3	1
P_2	9	5
P_3	2	4
P_4	1	4

UNIT – III

8. a) Explain the indexed allocation method of file storage. Explain, how it overcomes
   the drawbacks of sequential allocation?
   b) Consider the following page reference string
   1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6.
   How many page fault would occur for FIFO and LRU replacement algorithms   (7+8)
   assuming three frames?

9. a) What is linked allocation? How is it different from contiguous allocation? Explain.
   b) Explain different file operations.   (7+8)

10. a) Write a short note on swapping

    b) Explain Optimal Page replacement algorithm with an example.   (7+8)

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COA 303.1   Reg. No. ....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
B.C.A
SOFTWARE ENGINEERING

Time: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30
   a. Define the term   i) Software   ii) KLOC
   b. State software engineering problem.
   c. Write the use of software configuration management process.
   d. List the outputs of waterfall model.
   e. What is data dictionary?
   f. List the common errors in Data flow diagrams.
   g. Differentiate between verification and validation.
   h. What is runway condition?
   i. What is the goal of project management process?
   j. What do you mean by Error report?
   k. Define software maintenance.
   l. What do you mean by PDL?
   m. Mention the two approaches to prototyping.
   n. What is single entry and single exit property of a structured programming?
   o. Define fault and failure.
   p. What are test oracles?
   q. What are drivers and stubs?
   r. Explain functional testing.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain in detail various phases in software development.
   b. With the help of a neat diagram, explain spiral model.   (8+7)

3. a. Explain Iterative Enhancement Model.
   b. Mention and explain the stages in inspection process.
   c. Explain SCM life cycle of an item.   (6+5+4)

4. a. How does cost, schedule and quality effect software development?
   b. Explain the characteristics of a software process.
   c. Explain the various attributes for quality of a software.   (6+5+4)

Page | 1

UNIT – II

5. a. Explain the components of SRS.
   b. List the common rotations and symbols used in DFD.
   c. Explain structure charts with the help of an example.   (6+4+5)

6. a. What is coupling? Mention the factors affecting coupling.
   b. Explain the need of an SRS.
   c. Write a note on critical design reviews.   (5+5+5)

7. a. What is cohesion? Explain different types of cohesion.
   b. Write a note on   i) Design walk through   ii) consistency checkers   (8+7)

UNIT – III

8. a. Explain cause effect graphing with an example.
   b. Write the significance of symbolic execution.
   c. Write a note on software quality assurance.   (6+5+4)

9. a. Explain boundary value analysis and equivalence class partitioning.
   b. Describe the static analysis as a technique for verification.   (8+7)

10. a. What is testing? Explain Black box testing and white box testing.
    b. Explain preventive and corrective maintenance.
    c. Write a note on Information Hiding.   (6+6+3)

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CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
COMPUTER APPLICATION
OPERATING SYSTEMS

Duration: 3 Hrs.   Max. Marks: 120

PART – A

1.   Answer any 15 questions from the following: 15×2=30

   a)   Distinguish between a program and a process.

   b)   Define operating system. Give any two examples.

   c)   What is the main advantage of multiprogramming system?

   d)   What do you mean by context switch?

   e)   Differentiate CPU bound process and I/O bound process.

   f)   What is a thread?

   g)   Define starvation.

   h)   What is a deadlock? Give an example.

   i)   What do you mean by circular-wait?

   j)   Define Kernel.

   k)   Define independent process.

   l)   List any four attributes of a file.

   m)   Define process state.

   n)   What is ready queue?

   o)   What is free-space list?

   p)   What is thrashing?

   q)   List any two disadvantages of contiguous memory allocation.

   r)   What is fragmentation?

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2.   a)   Explain timesharing system.

   b)   Explain process management component of an operating system.

   c)   Explain the benefits of multithreading.   (5 + 5 + 5)

3.   a)   Explain process scheduling with the help of queuing diagram.

   b)   Explain different operating system services.   (8 + 7)

4. a) What is process control block? Explain with a neat diagram.

   b) Explain different multithreading models.

   c) Write a note on co-operating processes.   (6 + 6 + 3)

UNIT – II

5. a) Explain the different scheduling criteria.

   b) How deadlocks can be described by resource allocation graph? Explain.

   c) Explain priority scheduling with the help of an example.   (5 + 5 + 5)

6. a) Explain preemptive and non-preemptive scheduling.

   b) What is critical section problem? What are the requirements for solutions to critical section problem?

   c) Explain FCFS algorithm with an example.   (5 + 5 + 5)

7. a) Draw a Gantt Chart for the following and calculate the average waiting time using round robin scheduling algorithm with time quantum of four milliseconds.

Process	Burst Time
P_1	24
P_2	3
P_3	3
P_4	14

   b) What is a semaphore? List the different types of semaphores and their uses. (10 + 5)

UNIT – III

8. a) Explain first-fit, best-fit and worst-fit allocation.

   b) Explain briefly the logical and physical address space.

   c) Write a note on
   i) Contiguous allocation and   ii) Swapping   (5 + 5 + 5)

9. a) Consider the following page reference string:
   1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6
   How many page faults would occur for the following replacement algorithm assuming three frame, using LRU and optional page replacement algorithms?

   b) Explain any two file access methods.   (10 + 5)

10. a) Explain various file operations in detail.

    b) When do page faults occur? Explain the FIFO page replacement algorithm. Using the following reference string:
    1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5
    Assuming four frames.

    c) Explain the concept of demand paging.   (5 + 5 + 5)

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CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
COMPUTER NETWORKS

Duration: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any 15 questions from the following: 15×2=30

    a) What do you mean by data communication?

    b) What is multiplexing and demultiplexing ?

    c) Define transmission medium.

    d) Expand : ISO and OSI.

    e) What are nodes and links.

    f) Mention the services provided by PPP.

    g) What is CSMA/CD ?

    h) What is the difference between Fast Ethernet and Gigabit Ethernet ?

    i) What is a hub? In which layer does it operate?

    j) Differentiate between router and repeater.

    k) Why ICMPv4 is designed?

    l) Write any two tools that can be used in the internet for debugging.

    m) How many bits are used in IPv4 and IPv6 addressing?

    n) What is the purpose of piggybacking technique?

    o) What is dynamic document?

    p) What is the purpose of port numbers?

    q) What do you mean by local logging and remote logging.

    r) Differentiate between unicast and multicast transmission.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a) Write a note on local area network and wide area network.

    b) Explain in detail coaxial cable with diagram.   (8+7)

3. a) Define physical topology. Explain Bus and Ring topology

    b) Write a note on simple protocol and stop-and-wait protocol.   (7+8)

4. a) With diagram, explain :
        i) A frame in a character – oriented protocol.
        ii) A frame in a bit oriented protocol

    b) Explain in detail fiber – optic cable   (8+7)

UNIT – II

5. a) Explain CSMA/CA.
    b) Explain the 3 methods that have been devised for communication
        between switches.   (8+7)

6. a) Explain the diagram approach and virtual circuit approach to route the data packets
    b) Write a note on FDMA.   (8+7)

7. a) Explain the characteristics of a standard Ethernet.
    b) With the help of a diagram, explain IP datagram packet format.   (8+7)

UNIT – IIi

8. a) Explain the various services provided by the transport layer.
    b) Write a note on HTTP.   (8+7)

9. a) Explain IPV6 packet format.
    b) Write a note on Go-Back-N protocol   (8+7)

10. a) With the help of a diagram, explain the format of TCP segment.
    b) Write the steps to be followed to map the hostname to an IP address (8+7)

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COA 304.1   Reg. No. ....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
B.C.A
DIGITAL ELECTRONICS

Time: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30
   a. Write the logic circuit and truth table of NOR gate.
   b. Prove that $A + \bar{A}B = A + B$.
   c. What is a logic gate?
   d. Convert $146_{(10)}$ to binary.
   e. Differentiate between multiplexer and demultiplexer.
   f. Draw the logic circuit for $F = (A + B + \bar{C})(A + \bar{B} + C)(A + B + C)$.
   g. Convert $F = A\bar{B}C + \bar{B}C\bar{D}$ into standard SOP form.
   h. Assign the proper odd parity bit to the following code groups.
      i) 1011   ii) 110011
   i. What is the difference between canonical and standard form?
   j. Give the general structure of 3 variable k-map.
   k. What is a shift register?
   l. Name any four characteristics of flip-flops.
   m. Write the excitation table of JK flip-flop.
   n. State De-Morgan's theorems.
   o. Write the block diagram of sequential circuit.
   p. What is a counter? How many flip-flops are needed to design a mod-12 counter?
   q. Define the product of sums (POS) expression with an example.
   r. Convert the Excess-3 code 11000110 to binary.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain the basic gates with logic symbols and truth tables.
   b. Convert the following binary numbers to hexadecimal.
      i) 1100110011.110   ii) 10011101.1010   iii) 11110110.10
   c. Prove that NAND gate is universal gate.   (6+3+6)

3. a. Perform the following conversions:
      i) $DAD_{(16)} = (?)_{(10)}$ ii) $184_{(10)} = (?)_{(8)}$
   b. Prove De-Morgan's theorems.
   c. Explain the procedure of converting a decimal number to binary and vice versa. Give an
      example.   (4+4+7)

4. a. Perform the following subtractions using 1's and 2's complement method.
      i) 13.5 – 8.75   ii) 27.25 – 36.75
   b. Simplify the expression $(B + BC) (B + \overline{B}C)$ using the rules of Boolean Algebra.
   c. How parity bit is used to detect an error? Give an example.   (6+4+5)

UNIT – II

5. a. Explain the working of full adder with neat circuit diagram and truth table.
   b. Use Karnaugh map to minimize the following expression and write the logic circuit for
      the simplified expression $F(A, B, C, D) = \sum 0, 3, 4, 7, 8, 11, 15) + \sum_d(9,10)$ (7+8)

6. a. Design a code converter to convert the BCD code to Excess-3 code.
   b. With the help of a logic diagram and truth table, explain the working of a half subtractor.
                              (9+6)

7. a. Explain the working of parallel binary adder with neat diagram.
   b. What is a magnitude comparator? Explain the 2 bit magnitude comparator.   (8+7)

UNIT – III

8. a. Explain the working of JK flip-flop with circuit diagram and truth table.
   b. Realise $F(A, B, C, D) = \sum(0, 1, 2, 5, 8, 9, 14)$ using multiplexer.   (7+8)

9. a. Design the mod-6 counter using JK flip-flops.
   b. With a neat diagram, explain the working of 4:1 multiplexer.   (8+7)

10. a. Explain the working of a 4bit shift register with a neat diagram.
    b. What is excitation table? Write the excitation tables of SR and D flip-flops.
    c. Explain the working of 4 to 1 demultiplexer.   (7+4+4)

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COA 501.1   Reg. No...............................

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
ADVANCED JAVA

Duration: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any 11 questions from the following: 11×2=22

    a) Define ODBC.

    b) What is the role of deployment descriptor in Java Servlets.

    c) Write any two features of JDBC.

    d) How do you add HTML tags into Java Servlet ?

    e) State the difference between GET and POST methods.

    f) What are Java Beans?

    g) What do you mean by 1 – tier architecture?

    h) List the classes and interfaces used in JDBC.

    i) Mention directive tags in JSP.

    j) Define Cookies.

    k) State J2EE component technologies.

    l) Define HTTP protocol.

    m) Describe setxxx( ) of prepared statement.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a) What are the needs for enterprise programming? Write the advantages of J2EE

    b) Write a note on J2EE service technologies.   (7+6)

3. a) Explain in detail the J2EE communication technologies.

    b) Explain any three API's available for J2EE.   (7+6)

4. a) Explain three – tier architecture of J2EE with a neat diagram.

    b) Write a note on the following :   (7+6)

        i) J2EE runtime   ii) J2EE containers

UNIT – II

5. a) What are the benefits of using prepared statement over statement in order to execute a query.

    b) Write a simple Java Servlet program and explain the benefits of using a servlet. **(6+7)**

6. a) List out the types of JDBC drivers. Explain any two.

    b) What is Result set? Explain the methods used in navigating a Result set. **(7 + 6)**

7. a) Explain JDBC architecture and its main components.

    b) Write with a code example, the procedure of communicating with database using JDBC API's.

    (7 + 6)

UNIT – III

8. a) Explain in detail JSP life cycle.

    b) What are the advantages of JSP over servlet? Explain. **(7 + 6)**

9. a) What is a session? Explain the properties of session in Java servlet.

    b) Explain the basic JSP tags. **(7 + 6)**

10. a) What do you mean by implicit objects? Explain any three implicit objects with an example.

    b) Write and explain the procedure of reading data from a client. **(7 + 6)**

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COA 502.1

Reg. No..

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER :2019
COMPUTER APPLICATION
WEB PROGRAMMING WITH ASP.NET

Duration: 3 Hrs.

Max. Marks: 100

PART – A

1. Answer any 11 questions from the following: 11×2=22

    a) Define session state.

    b) Define code sharing in ASP.Net.

    c) Write the importance of AdRotatorControl.

    d) What is the use of Panel Server Control? Explain.

    e) What are validation controls?

    f) What is the purpose of login control in ASP.NET?

    g) What are the event handler in global aspx file?

    h) List the different types of caching.

    i) Write any two importances of HTTP.

    j) What are the components of ADO.NET?

    k) List any four options provided by BehaviourEditorPart.

    l) What is entire coding model?

    m) How is a literal server control different from a label control?

PART – B

Answer any TWO full questions from each unit:
UNIT – I

2. a) Explain client side state management.

    b) What are the different application location options available in ASP.NET?

    c) Explain the advantages and disadvantages of a session.   (4 + 4 + 5)

3. a) What is Cross Page Posting? Explain.

    b) Explain code sharing using code directory.

    c) What are the different ASP.NET security controls? Explain.   (4 + 4 + 5)

4. a) Explain the different types of cookies in ASP.NET? Give an example for each.

    b) What is a state? Explain the different types of state.

    c) Write a note on application lifetime.   (6 + 4 + 3)

UNIT – II

5. a) Differentiate HTMLOutputCheckbox and HTMLInputRadioButton Controls. Give an example for each.

   b) Compare the following:

      i) ListBox Serve Control and DropdownList Server Control

      ii) Button Server Control and Image Button Server Control

   c) Explain the following with respect to AdRotator Control.

      i) Alternate tent   ii) Impressions.   (5 + 4 + 4)

6. a) Explain any four properties of Base Validator Class.

   b) Explain the steps involved in creating a user account in ASP.NET.

   c) Explain the different date formats of calander control.   (4 + 5 + 4)

7. a) Explain the following navigation controls.
      i) TreeView   ii) Menu

   b) Explain Compare Validator Control and Custom Validator Control.

   c) Write a note on Panel Control.   (6 + 4 + 3)

UNIT – III

8. a) How do you apply themes to asp.net applications? Explain with an example.

   b) Explain the steps involved in accessing data with ServerExplorer.

   c) Differentiate global theme and page theme.   (5 + 5 + 3)

9. a) Explain master page and its functions in detail.

   b) Write a note on DataAdapter and DataSets.

   c) Explain any three functions of WebPartManager Contorl.   (6 + 4 + 3)

10. a) Explain the disconnected Data architecture in .NET framework.

    b) Explain how themes can be applied on controls at Runtime.   (5 + 8)

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COA 502   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2016
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any ELEVEN questions from the following: 11×2=22
   a. Write any two advantages of vector graphics.
   b. What is the drawback of DDA line algorithm?
   c. Name any two graphics standards.
   d. What is clipping? Write the out code of the point lying inside the clip window.
   e. What do you mean by line style?
   f. What are the two basic techniques for generating characters?
   g. What do you mean by homogeneous coordinate system?
   h. Define rigid body transformation.
   i. Define coherence.
   j. Differentiate between flood fill and boundary fill algorithms.
   k. Write 3D scaling matrix.
   l. What do you mean by synchronous transmission mode?
   m. Define update dynamics.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain the architecture of vector display with a neat diagram.
   b. Explain moving pen method for drawing thick primitives.
   c. Write a note on pattern filling.   (5+5+3)

3. a. Describe conceptual framework for an interactive graphics system.
   b. Derive and write midpoint line generation algorithm.   (6+7)

4. a. Compare raster scan display and vector scan display.
   b. Derive midpoint circle generation algorithm.
   c. Write a note on floodfill algorithm.   (4+6+3)

UNIT – II

5. a. Prove that successive 2D translations are additive and successive rotations are also additive.
   b. Describe window to viewport transformation. Derive the matrix to represent this transformation.   (7+6)

Page | 1

6. a. Explain cohen-sutherland line clipping algorithm.
   b. Consider a rectangle consists of A(50, 50), B(120, 100), C(50,100) and D(120,50). Magnify this rectangle to twice its size while keeping the centre of rectangle (85, 75) constant. Write the coordinates of the new points. (7+6)

7. a. Derive the transformation required to rotate a 2D object through any arbitrary point. Write matrix representation for this rotation.
   b. Write 3D matrix for rotation about all 3 axes and 3D matrix for translation using homogeneous coordinate system. (6+7)

UNIT – III

8. a. Explain different types of media used to represent the multimedia.
   b. Explain the basic technology of optical storage.
   c. Write a note on sessions of a CD-WO. (6+4+3)

9. a. Explain briefly JPEG compression technique.
   b. Explain CD-ROM technology.
   c. Write a note on MIDI. (5+3+5)

10. a. Explain various steps followed in image recognition process.
    b. Write a note on image transmission.
    c. Explain different types of dynamics in graphics. (7+3+3)

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COA 502   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30
    a. Write any two advantages of vector graphics.
    b. What is the drawback of DDA line algorithm?
    c. Name any two graphics standards.
    d. What is clipping? Write the out code of the point lying inside the clip window.
    e. What do you mean by line style?
    f. What are the two basic techniques for generating characters?
    g. What do you mean by homogeneous coordinate system?
    h. Define rigid body transformation.
    i. Define coherence.
    j. Differentiate between flood fill and boundary fill algorithms.
    k. Write 3D scaling matrix.
    l. What do you mean by synchronous transmission mode?
    m. Define update dynamics.
    n. What do you mean by sampling rate?
    o. What are ADC and DAC?
    p. What do you mean by entropy coding?
    q. Expand MIDI and JPEG.
    r. What is the difference between pits and lands?

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain the architecture of vector display with a neat diagram.
    b. Explain moving pen method for drawing thick primitives.
    c. Write a note on pattern filling.   (6+6+3)

3. a. Describe conceptual framework for an interactive graphics system.
    b. Derive and write midpoint line generation algorithm.   (7+8)

4. a. Compare raster scan display and vector scan display.
    b. Derive midpoint circle generation algorithm.
    c. Write a note on floodfill algorithm.   (6+6+3)

UNIT – II

5. a. Prove that successive 2D translations are additive and successive rotations are also additive.
   b. Describe window to viewport transformation. Derive the matrix to represent this transformation. (8+7)

6. a. Explain cohen-sutherland line clipping algorithm.
   b. Consider a rectangle consists of A(50, 50), B(120, 100), C(50,100) and D(120,50). Magnify this rectangle to twice its size while keeping the centre of rectangle (85, 75) constant. Write the coordinates of the new points. (8+7)

7. a. Derive the transformation required to rotate a 2D object through any arbitrary point. Write matrix representation for this rotation.
   b. Write 3D matrix for rotation about all 3 axes and 3D matrix for translation using homogeneous coordinate system. (7+8)

UNIT – III

8. a. Explain different types of media used to represent the multimedia.
   b. Explain the basic technology of optical storage.
   c. Write a note on sessions of a CD-WO. (7+5+3)

9. a. Explain briefly JPEG compression technique.
   b. Explain CD-ROM technology.
   c. Write a note on MIDI. (6+4+5)

10. a. Explain various steps followed in image recognition process.
    b. Write a note on image transmission.
    c. Explain different types of dynamics in graphics. (7+5+3)

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COA 503.1   Reg. No...............................

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
MICROPROCESSOR PROGRAMMING

Duration: 3 Hrs.   Max. Marks: 100

PART – A

1. Answer any 11 questions from the following: 11×2=22

    a) Define Bus. What is the width of data bus and address bus in 8086 processor.

    b) List any two features of 4004 processor.

    c) Represent 127 in packed and unpacked BCD.

    d) What is the value of AL and CF after executing the following instructions :

        MOV AL, 5FH
        MOV CL, 46H
        ADD AL, CL

    e) What is intrasegment and intersegment jump?

    f) If CS = 5000H and IP=750H, what will be the address of the next instruction executed by the processor?

    g) What is the purpose of LEA construction? Give an example.

    h) Differentiate between procedure and macros.

    i) Calculate the Physical and effective address for the instruction :
        MOV AL, $[BX+SI]$
        If BX = 700H, SI = 200H, DS=3500H

    j) What is segment override prefix? Give an example.

    k) List the constructions used to control carry flag.

    l) Identify the addressing modes used for the instructionis :

        i) MOV AL,15H   ii) MOV BL, $[BP+SI]$

    m) What is the use of SI and DI registers in string manipulation instructions?

PART – B

Answer any TWO questions from each unit:
UNIT – I

2. a) What is addressing mode? Explain the different program addressing mode.

    b) Explain any two types of computer data formats with example.

                                                              (7+6)

3. a) Explain the evolution of microprocessor from 4 bit to 16 bit.

    b) With a neat diagram, explain the bus structure of 8086 processor.   (6+7)

4. a) Explain the programming model of 8086.

   b) With a neat diagram, explain the flag register. (5+8)

UNIT – II

5. a) Explain the following instructions.

   i) ADD   ii) TEST   iii) XCHG iv) SBB

   c) Explain any two string instructions with example. (8+5)

6. a) Explain PUSH and POP operations with suitable diagram & example.

   b) Write an assembly language progam to find the GCD of two numbers. (7+6)

7. a) Explain any two methods of passing parameters to a procedure.

   b) Explain the following instructions.

   i) MUL   ii) CMP   iii) ROR (7+6)

UNIT – III

8. a) What is an Interrupt? Explain the steps used in interrupt processing.

   b) What is a Macro? Explain with an example. (7+6)

9. a) Explain the Public and Extern directives with an example.

   b) Explain any one data conversion method with suitable example. (7+6)

10. a) What is an Interrupt Vector? Explain

   b) Explain the interrupts

   i) INT 3   ii) INTO (8+5)

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COA 504.4   Reg. No.................................

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
B.C.A.
DATA MINING

Duration: 3 Hrs.   Max. Marks: 80

PART – A

i. **Answer any 10 questions from the following:**   10×2=20

   a) What is data warehousing?

   b) Define data mining.

   c) Differentiate supervised and unsupervised learning.

   d) Expand i) RAD   ii) OLAP

   e) What is metadata?

   f) What is association rule?

   g) Define clustering.

   h) What is splitting criterion?

   i) What is temporal datamining?

   j) Define web mining.

   k) List any four DM application areas.

   l) Write any two applications of rough sets.

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a) Describe the data warehouse architecture.

    b) What is data warehouse scheme? Explain   (6+4)

3. a) With a neat diagram, explain the steps involved in KDD

    b) List and explain different mining problems in sequence text and spatial mining. (6+4)

4. a) Explain issues and challenges in DM.

    b) Differentiate ROLAP and MOLAP.   (6+4)

UNIT – II

5.   a) Explain Apriori algorithm with example.

     c) Write a note on partition algorithm.   (6+4)

6.   a) Differentiate hierarchical and partition clustering.

     b) What is a decision tree? Write its advantages and disadvantages.   (4+6)

7.   a) Write a note on splitting attribute and overfit.

     b) Explain divisive clustering.   (6+4)

UNIT – III

8.   a) What is an activation function? What is the importance of activation function in neural network? Explain.

     b) What is radial basis function? Explain.   (6+4)

9.   a) What are the differences between cross over and mutation?

     b) Write a note on web content mining.   (5+5)

10.   a) What is tent mining? List and explain any two applications of tent mining.

     b) Compare and contrast information retrieual and information extraction.   (6+4)

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COA 505.6 Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
B.C.A
E – COMMERCE

Time: 3 Hrs.   Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30
    a. What is Ecommerce?
    b. What are the prerequisites of E-Commerce?
    c. Define B2C E-Commerce?
    d. State any two broad goals of E-Commerce.
    e. Mention any two categories of B2B market place.
    f. What do you mean by ciphertext?
    g. What is decryption?
    h. What is a digital signature?
    i. What is a smart card?
    j. List any two traditional payment methods.
    k. What are i-cheques?
    l. Define SCM.
    m. Which are the categories of SCM?
    n. What is PC banking?
    o. What is a Denial of Service attack?
    p. Write any two goals of SCM.
    q. What are paperless bills?
    r. What is sniffing?

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Which are the main activities of E-Commerce? Explain.
   b. Which are the technical components of E-Commerce? Explain each component.   (8+7)

3. a. List the advantages and disadvantages of E-Commerce.
   b. Explain the functions of E-Commerce.   (10+5)

4. a. What is the scope of E-Commerce? Explain.
   b. State the different applications of E-Commerce.   (10+5)

UNIT – II

5. a. Explain the movement of information and items in B2B E-Commerce with a neat diagram.
   b. What is a firewall? Explain its purpose and use.   (10+5)

6. a. List and explain the benefits for buyers and sellers in a B2B market place.
   b. Write a note on the various security issues in E-Commerce.   (10+5)

7. a. Explain the public key encryption with a neat diagram.
   b. List and explain any five computer related crimes.   (10+5)

UNIT – III

8. a. Explain the functions of SCM.
   b. What is an electronic wallet? Explain.   (10+5)

9. a. Explain the three categories of electronic payment systems.
   b. What is E-cash? Explain its features and purpose.   (10+5)

10. a. What is net banking? Explain the features of net banking.
    b. Explain any two strategies in SCM.   (10+5)

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Reg. No...........................

CREDIT BASED FIRST SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2019
COMPUTER SCIENCE – I
FUNDAMENTALS OF COMPUTERS & PROGRAMMING IN C
Duration: 3 Hrs.   Max. Marks: 80

PART – A

1. **Answer any TEN questions from the following:** $10 \times 2 = 20$
   a) Write the excess-3 and BCD equivalent of $(125)_{10}$
   b) Define duality of Boolean algebra. Write the dual of $F = (x + y)(x^1 - y)$
   c) Write the truth table and logic symbol of OR gate.
   d) Convert $(FACE)_{16}$ to binary and octal.
   e) List the rules used for naming an identifier.
   f) What are comments? How to write comments in C?
   g) What is the difference between getch( ) and getchar ( ) functions?
   h) Differentiate break and continue statements.
   i) What is a Union? How it differs from structures?
   j) What do you mean by scope and lifetime of a variable?
   k) What is recursion?
   l) What is a pointer? How do you declare a pointer variable in C?

PART – B

Answer any Two questions from each unit:

UNIT – I

2. a) Express the Boolean function $F(A, B, C) = xy + x^1 z$ as sum of minterms and product of maxterms.

   b) Write the logic symbol & truth table for NAND gate.   [6 + 4]

3. a) Perform the following conversions:
      $(915 - 67)_{10} = (?)_2 = (?)_{16}$
   b) Using K-map, simplify the following expression.
      $F(a, b, c) = \sum(0,1,2,3,7)$ [6 + 4]

4. a) Simplify $F(A, B, C, D) = \sum(1,3,7,11,15) + \sum_d(0,2,5)$ using K-map.
   b) State and prove any two theorems of Boolean algebra.   [6 + 4]

UNIT – II

5. a) What are Constants? How are they classified? Give an example.
   b) Explain the scanf function with example.   [6 + 4]

6. a) Explain the various fundamental data types in C.
   b) Explain if-else and nested-if statements with syntax and example.   [5 + 5]

7. a) With syntax and example, explain switch statement.
    b) What is an array? Explain how a two –dimensional array is declared and initialized in C. [5 + 5]

UNIT – III

8. a) Explain any three categories of user-defined functions.
    b) With syntax and example explain any four string functions. [6 + 4]

9. a) What is meant by passing arguments by value and by reference? Explain with examples.
    b) With syntax and example, explain how structure variables and members are declared and defined in C. [5 + 5]

10. a) What is a user-defined function? Explain how it is declared, defined and called in a Program.
    b) Explain initialization of pointer variables with example. [6 + 4]

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CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2019
COMPUTER SCIENCE – V
VISUAL PROGRAMMING USING VB.NET

Duration: 3 Hrs.   Max. Marks: 80

PART – A

1. Answer any TEN questions from the following: 10×2=20
    a) What is the use of ReDim keyword in an array?

    b) List any four namespaces in VB.NET.

    c) State the function of Input box ( )

    d) Differentiate between checkboxes and radio buttons.

    e) How do you convert strings to numbers? Give an example.

    f) What do you mean by exception?

    g) Write the difference between function and procedure in VB.NET.

    h) List any four properties of button control.

    i) Define sqlDataReader.

    j) Explain any two navigation methods in ADO. Net.

    k) Define any two important properties of a data control.

    l) Write the syntax of for each....Next.

PART – B

Answer any Two questions from each unit:

UNIT – I

2. a) Explain any five parts of VB IDE.
    b) How variables are declared in VB.Net.   [5 + 5]

3. a) Explain with example the various if ....else statements available in VB.Net.
    b) Explain select case with syntax and example.   [5 + 5]

4. a) What is an array? Explain different types of arrays used in VB.Net.
    b) Explain any five string handling functions with example.   [5 + 5]

UNIT – II

5. a) Write the methods/properties for performing the following operations on the comboBox.
        i.   Adding an item.
        ii.   Removing an item
        iii. Determining which item is delected.
    b) Explain any four properties of a form.   [6 + 4]

6. a) How do you change a normal window form to an MDI form? Explain the different
   methods of arranging MDI child windows.
   b) Which are the text manipulation properties of textbox? Explain? [6 + 4]

7. a) List the features of object oriented programming and explain.
   b) Write a note on group box and List Box. [6 + 4]

UNIT – III

8. a) Explain structured exception handling.
   b) Write a note on simple and complex binding. [6 + 4]

9. a) Explain the following objects of ADO.NET.
   i) Data Connection   ii) Data Table   iii) Command
   b) Write a note on Data Adapter. [6 + 4]

10. a) Write the code to create, retrieve and update a data table.
    b) Write a short note on Datasets. [6 + 4]

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CREDIT BASED THIRD SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2019
COMPUTER SCIENCE – III
DBMS AND DATA STRUCTURES USING C

Duration: 3 Hrs.   Max. Marks: 80

PART – A

1. Answer any TEN questions from the following: 10×2=20
    a) Define Database.

    b) Define entity and attribute.

    c) What is primary key? Give example.

    d) What is the purpose of dual table in Oracle?

    e) Give syntax of UPDATE command in SQL.

    f) What is subquery?

    g) Write command to delete table in SQL.

    h) Define cardinality ratio.

    i) Write algorithm to traverse a linked lists

    j) Differentiate arrays and linked lists.

    k) Define stack overflow and stack underflow.

    l) Define tree. Give example.

PART – B

Answer any Two questions from each unit:

UNIT – I

2. a) List and explain advantages of DBMS over traditional file system.
    b) List and explain different types of end users of DBMS.   [6 + 4]

3. a) Explain 3-Schema architecture of DBMS with neat block diagram.
    b) Explain any four types of attributes with example.   [5 + 5]

4. a) Explain different symbols used in E-R diagrams.
    b) Explain SELECT operation of relational algebra with suitable examples. [6 +4]

UNIT – II

5. a) List and explain any five data types in Oracle.
    b) Consider table student (Roll-No, Name, Class, M1,M2,M3, M4, M5) Do the following.
       i)   Calculate total and Average marks.
       ii) List Roll-No, Name and class of all students in ascending order of Name.
       iii) Display details of all students whose names end with 'ma'.
       iv) Display total number of students belong to II B.Sc.
       v)   Add a column Cell-No to above table.   [5 + 5]

6. a) Explain the basic structure of Oracle system with a neat diagram.
    b) Explain any four aggregate functions available in Oracle.   [6 + 4]

7. a) Write a note on
   i) Referential Integrity constraints
   ii) Check constraints

   b) Explain GROUP BY and HAVING with suitable examples.   [6+ 4]

UNIT – III

8. a) Write algorithms for inserting a node to the beginning of linked list and deleting
      a node from the beginning of linked list.
   b) Write an algorithm to implement PUSH and POP operations of stack.   [6 + 4]

9. a) Write algorithm, to insert and delete items in a queue.
   b) Write a note on
      i) Doubly linked list
      ii) Circularly linked list   [6 + 4]

10. a) What are three standard ways of traversing a tree? Write steps in case of each traversal
       using recursion.
    b) Explain the applications of binary trees.   [6 +4]

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COS 502.3   Reg. No............................

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2019
COMPUTER SCIENCE – VI
Operating System & Linux

Duration: 3 Hrs.   Max. Marks: 80

PART – A

1. Answer any TEN questions from the following: 10×2=20
   a) Define thread.

   b) List the types of real time system.

   c) Name any two types of operating system interfaces.

   d) What do you mean by 'System Call' in operating systems?

   e) What is the difference between SJF and FCFS scheduling?

   f) What do you mean by 'Starvation?

   g) What is the function of 'ls' and 'who' commands in Linux?

   h) Define 'Deadlock'.

   i) Mention any four attributes of files.

   j) Mention any two advantages of Linux operating systems.

   k) List the functions of dispatcher.

   l) Mention the different text editors present in linux with their significance.

PART – B

Answer any Two questions from each unit:

UNIT – I

2. a) Define Operating System. Explain the functions of Operating System.
   b) What do you mean by multi-programming systems? How is it different from batch
      processing systems?   [5 + 5]

3. a) Define process. With a neat diagram explain the state diagram of the process.
   b) Consider the following set of processes, with the length of the CPU burst in
      milliseconds.

Process	Burst Time
P_1	6
P_2	1
P_3	3
P_4	1

      Draw the Gantt-Chart to illustrate the execution of process and calculate the average
      waiting time using SJF and Round Robin (time quantum =2ms) scheduling.   [5 + 5]

4. a) What is segmentation? Explain it with example.
   b) Define paging. Explain with example.
                                                            [5 + 5]

UNIT – II

5. a) Explain the necessary conditions for deadlock to occur.
    b) With example, explain the Banker's algorithm used in deadlock avoidance.   [4 + 6]

6. a) Explain the following disk scheduling algorithms.
       i) SSTF   ii) C SCAN   iii) LOOK
    b) What is a directory? Explain any two directory structures.   [6 + 4]

7. a) Explain the resource allocation graph with example.
    b) Write a note on i) Linear List   ii) hash table   [5 +54]

UNIT – III

8. a) Explain the following commands with example.
       i) wc   ii) grep   iii) chmod
    b) Write a shell program to find the factorial of a given number.   [6+ 4]

9. a) With example, explain the following looping statements.
       i) while   ii) for
    b) What do you mean by shell? Explain the different types of shell.   [6 + 4]

10. a) What do you mean by directory in Linux? How do you create a directory? Explain the different permissions given to the directory.
    b) Write the shell program to find the sum of 'n' natural numbers   [6 +4]

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18STA302   Reg.No. ....

CREDIT BASED THIRD-SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
STATISTICS – I
ELEMENTS OF DATA ANALYTICS

Time: 3 Hrs   Max. Marks: 80

PART - A

Answer any TEN of the following: 10X2=20

1. a) State the addition theorem of probability for mutually exclusive events.

   b) State the limitation of classical definition of probability.

   c) Write down the sample space, when a coin is tossed three times and the number of heads obtained.

   d) If $P(A) = 0.8$ $P(B) = 0.5$ and $P(A \cup B) = 0.9$, find $P(A/B)$. Are A and B independent events?

   e) If a & b are two constants and X is a random variable, S.T. $V(aX+b)=a^2V(X)$

   f) Define probability mass function.

   g) If $X \sim P(\lambda)$ with $E(X) = 1.5$, find $P(X=0)$

   h) X is a Bernoulli variate taking values 0&1 with respective probabilities 0.6 & 0.4, find its mean and S.D.

   i) Which components of a time series are associated with the following sentences?

   * A fire in a factory delaying production for one month.
   * An era of prosperity in auto industry.

   j) Write down the normal equations for fitting linear trend.

   k) Define time series. Give an example.

   l) State any two demerits of method of least squares for measuring trend.

PART – B

Answer any TWO of the following: 2X10=20

2. a) A fair coin and a fair die are thrown. Find the probability of
      i) head on the coin and the number 6 on the die.
      ii) head on the coin and even number on the die.

b) For a university cricket team 2 players are to be selected from a certain college among 5 batsmen, 3 bowlers and 2 wicket keepers. Find the probability of selecting

i) a batsman & a wicket keeper   ii) bowlers only.   (5+5)

3. a) Three persons A,B & C are able to hit a target 6,5 & 8 times respectively with 10 shots. If each of them fires once at the target, what is the probability that the target is hit?

  b) A card is drawn at random from a pack of 52 playing cards.
i) What is the probability that it is a heart?
ii) If it is known that the card drawn is red, what is the probability that it is a heart?   (5+5)

4. a) The probability that India wins a cricket match is 0.52. If India plays three matches, find the probability that it wins
(i) at least one match (ii) all three matches.

  b) A box has 5 white and 2 red balls. Another box has 3 white and 4 red balls. One ball is randomly selected from the first box and it is transferred to the second box. After that, one ball is randomly drawn from the second box. Find the probability that is red.   (5+5)

Answer any TWO of the following: **2X10=20**

5. a) For the following distribution, find the value of K and hence find the variance.

X	-2	0	1	2
P(x)	$K/2$	$K/4$	K	$K/4$

b) A person by paying Rs.5 enters into a game of shooting a target. With one shot, if he hits the target, he gets Rs. 25/- otherwise, he gets nothing. If his problem of hitting the target is $1/7$, find his expected net loss.   (5+5)

6. The following tables gives the number of deaths per day in a hospital for 400 days. Fit a Poisson distribution and obtain the theoretical frequencies for the data.

No. of deaths per day	0	1	2	3	4	5	6	7 & more
No. of days	68	134	127	43	19	7	2	0

7. a) An intelligence test was conducted on 1000 children. The average score was 42 and the SD 24. Find the number of children

i) exceeding score 60 ii) with score less than 36.

b) Suppose that the shipping time follows an exponential distribution with average shipping time equal to 10 minutes.
Find the probability that the loading time is
i) less than or equal to 5 minutes
ii) between 5 and 12 minutes.

(5+5)

Answer any TWO of the following: 2X10=20

8. a) Calculate the trend values by finding 3 yearly moving averages.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Sales	100	110	125	130	150	120	145	115	110	98

b) Fit a straight line trend to the following data by the method of least squares and estimate the production of 2021.

Year	2012	2013	2014	2015	2016	2017	2018
Production (lakh tons)	77	80	94	85	91	98	90

(5+5)

9. a) Briefly explain the components of time series.

b) Assuming that trend is absent, determine if there is any seasonality in the data given below:

Year	I Quarter	II Quarter	III Quarter	IV Quarter
1979	30	40	36	34
1980	34	52	50	44
1981	40	58	54	48
1982	52	76	68	62
1983	80	92	80	82

What are the seasonal indices for various quarters?

(5+5)

10. For the following time series obtain quadratic trend and estimate sales for 2021.

Year	2005	2007	2009	2011	2013	2015	2017	2019
Sales (.000)	5	7	10	18	21	35	50	70

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STA 302.1   Reg. No. ....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2019
STATISTICS
DATA ANALYSIS

Time: 3 Hrs   Max. Marks: 80

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following: 2X10=20

1. a) What is primary data? Mention a method of collection of primary data.

   b) Distinguish between attribute and variable.

   c) Define qualitative classification and quantitative classification.

   d) Write any two comparison of diagrams and graphs.

   e) Find the harmonic mean of $\frac{1}{3}$ & $\frac{1}{7}$.

   f) If $Q_1 = 10$ and $Q_3 = 20$ find quartile deviation.

   g) Define positive and negative skewness.

   h) What do you mean by secular fund? Give an example.

   i) Mention any two merits of least square method.

   j) In a bivariate data, if $\sigma_x = 5$ and $\sigma_y = 9$ respectively. If the $CoV(x, y) = 8$, find the coefficient of correlation.

   k) Write any two properties of regression lines.

   l) If $n = 10$ and $\Sigma d^2 = 200$, find the coefficient of rank correlation.

PART – B

Answer any TWO of the following: 10x2=20

2. a) The following data gives ages of 32 individuals in a locality. Form a frequency table with exclusive class interval of width ten.

      23, 46, 01, 13, 29, 36, 28, 01, 19, 28, 33, 11, 20, 28, 10, 59, 43, 39,

      30, 21, 40, 33, 36, 29, 21, 40, 16, 41, 19, 20, 13, 30.

   b) Prepare a blank table showing the distribution of population according to

      (i) Sex : Male, Female
      (ii) Religion: Hindu, Muslim, Christian
      (iii) Cities: Bangalore, Hyderabad, Mumbai
      (iv) Age: Below 20, 20-40, 40 & above   (5+5)

3. Draw the two ogives and hence determine median.

Age (Years)	0-20	20-40	40-60	60-80	80-100
No. of Persons	10	20	40	20	10

(10)

4. Following is the data regarding the strength of students of a university during 2015. Construct a percentage bar diagram.

Year	Arts	Science	Commerce	Engineering	Medical
2013	200	150	50	30	20
2014	250	200	80	50	40
2015	300	250	100	80	50

(10)

Answer any TWO of the following: 10x2=20

5. a) Find median for the following frequency distribution.

CI :	20-30	30-40	40-50	50-60	60-70
Frequency :	3	5	20	10	5

b) For the following time series, compute the trend values by the method of five yearly moving averages.

Year :	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sales:	210	201	215	223	245	235	225	233	249	265

(5+5)

6. a) Calculate quartile deviation and its coefficient for the following data.

Height of Trees (cms):	150	245	270	360	455
No. of Trees :	6	10	13	8	3

b) Find the coefficient of variation for the following frequencies distribution.

I.Q. :	65	75	85	95	105	115	125
No. of Children :	2	8	15	26	17	5	2

(5+5)

7. Compute Bowley's coefficient of skewness for the following.

Age :	below 10	10-15	15-20	20-25	25-30	30-35	35-40
No. of employees:	15	28	39	95	50	24	16

Age :	40 & above
No. of Employees :	8

(10)

Answer any TWO of the following: 10x2=20

8. Calculate Karl Pearson's coefficient of correlation. (10)

x \ y	20-29	30-39	40-49	50-59
10-14	10	10	–	–
14-18	–	20	8	–
18-22	–	10	25	6
22-26	–	–	7	4

9. a) Calculate the coefficient of rank correlation

X:	18	28	35	44	35	26	37	48
Y:	83	51	34	34	34	28	46	47

b) In a bivariate data, the regression lines are $2x - y + 4 = 0$ and $x - y + 1 = 0$.
Find $\bar{x}, \bar{y}$ and r. (5+5)

10. The following data relates to the age of husbands (x) and wives (y). Obtain the two regression equations and determine the most likely age of husband when wife's age is 25 years.

X:	25	28	30	32	35	36	38	39	42	45
Y:	20	26	29	30	25	18	26	35	35	42

(10)

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18STA302   Reg.No. ....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2019
STATISTICS – I
ELEMENTS OF DATA ANALYTICS

Time: 3 Hrs   Max. Marks: 80

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