कोर्सकोड : Course Code: **BCA-101**	कोर्स शीर्षकः– (Course Title) **Computer Fundamental & PC Software**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतमअंक : 18
Section-A   **Maximum Marks: 18**
नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्नसंख्या 1 से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Explain the differences between followings:
   (i)   Compiler and interpreter
   (ii) Spooling and buffering
   (iii) Message switching and Circuit switching.

2. Explain the different classification of Computers? Differentiate between microcomputers mini-computers and main-frames.

3. Explain the terms:
   (i)   Serial Processing
   (ii) Batch Processing
   (iii) Multiprogramming.

खण्ड ब   अधिकतमअंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्नसंख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

4. What is Computer virus? Briefly explain different types of computer virus?
5. Explain various elements of programming language.
6. Briefly explain the key features of various transmission media?
7. What do you mean by normal view and page layout view of a document?

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कोर्सकोड : Course Code: **BCA-102**	कोर्स शीर्षकः– (Course Title) **C Programming**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. (a) What is a static variable? When should it be used?
   (b) What is a library function? What are its uses in C programming?

2. (a) Illustrate differences between else-if and switch.
   (b) Write a C program to find sum of the digits of any given positive integer.

3. (a) Explain arithmetic, logical and bitwise operators with examples.
   (b) Write a C program to check whether the given matrix is symmetric or not

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्नसंख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

4. Write any five advantages of Pointers over Arrays.
5. What is a stack? Explain various applications of stack?
6. Write a program in C language to generate the given series upto terms less than 200.
   $1 - 4 + 9 - 16 + 25$ ....
7. Write the output/error of the following code with explanation.

```
Main ( )
{
static int var = 5;
printf ("%d", var .... );
if (var)
main ( );
}
```

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कोर्सकोड :　　　　　　　Course Code: **BCA-103**	कोर्स शीर्षकः— (Course Title)　Data Structures	अधिकतमअंक : 30　**Maximum Marks : 30**

खण्ड अ　　　　　　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : **18**

Section-A　　　　　　　　　　　　　　　　　　　　　　　**Maximum Marks: 18**

नोट—(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. How to represent binary tree using arrays and linked list?

2. Explain the basic operations of stack with pseudo code and evaluate the following postfix expression:

$$7\ 3\ 4 + - 2\ 4\ 5 / + * 6 / 7 +$$

3. What is heap? Explain heap sort with an example.

खण्ड ब　　　　　　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : **12**

Section –B　　　　　　　　　　　　　　　　　　　　　　　**Maximum Mark : 12**

नोट—(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्नसंख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

4. List advantages of linked list over arrays.
5. Write four the applications of queues.
6. List any two differences between graphs and trees.
7. Write in-order, pre-order and post-order traversal of following binary tree.
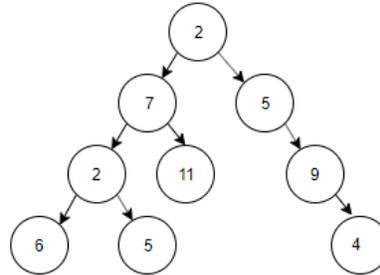
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कोर्सकोड : Course Code: **BCA-104**	कोर्स शीर्षकः– (Course Title) **Basic Mathematics**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt **all three questions** from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. State and prove Lagrange's mean value theorem

2. Show that every differentiable function is continuous but converse is not true.

3. Prove that inverse of a bijective function is bijective.

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt **all four questions** from this section.

प्रश्नसंख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

4. Evaluate $lim_{x \to 0} \sqrt{(1+x)} - 1$

5. Integrate $\int \frac{dx}{1+sinx}$

6. If α and β are roots of $ax2 + bx + c = 0$ then find $\alpha^3 + \beta^3$.

7. Find the Value of x: $(x^2 + 2x + 3)^{1/2} = (2x + 5)$

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कोर्सकोड : Course Code: **BCA-106**	कोर्स शीर्षकः– (Course Title) **Numerical Analysis**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : 18

Section-A　　　　　　　　　　　　　　　　　**Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt **all three questions** from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. What do you mean by Simpson's 1/3 rd and 3/8 th rule. Find the value of $\int 1/\sqrt{(1-x^2)}\, dx$ by Simpson''s 1/3 rd rule.

2. Solve the following system of equation by Gauss Elimination method:
   $4x1 + x2 + x3 = 4$
   $x1 + 4x2 - 2x3 = 4$
   $3x1 + 2x2 - 4x3 = 6$

3. Use Lagrange's interpolation to find the value for x=3 in the following table:

x:	3.2	2.7	1.0	4.8
f(x):	22.0	17.8	14.2	38.3

खण्ड ब　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : 12

Section –B　　　　　　　　　　　　　　　　　**Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt **all four questions** from this section.

प्रश्नसंख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

4. Estimate the eigen Values of matrix
$$\begin{vmatrix} 5 & 0 & 1 \\ 0 & 2 & 0 \\ 1 & 0 & 5 \end{vmatrix}$$

5. By Newton Raphson method find the positive root of f(x) = x - 2sin x. Choose suitable initial guess and perform three iterations.

6. For what value k, the following system of equations will have an infinite number of solutions
$$x+y+z=12$$
$$x+3y-z=5$$
$$x+2y-kz=4$$

7. If π= 22/7 is approximated as 3.14, find the absolute error and relative error respectively.

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कोर्सकोड : Course Code: **BCA-107**	कोर्स शीर्षक:– (Course Title) **Multimedia Technology**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. List the hardware and software components essential for professional multimedia development. Also, justify purpose and need of each of the hardware components.
2. How image is stored in vector format? Explain its advantages.
3. What are the authoring tools? List out some silent features of a good authoring tool.

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. What are the differences between the GIF and JPEG?
5. What do you mean by Animation? List the all Animation Tools.
6. What are the various component of hypertext? Discuss the application of hypertext in multimedia.
7. Explain the process involved in planning of Multimedia Application.

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कोर्सकोड : Course Code: **BCA-108**	कोर्स शीर्षकः– (Course Title) **Discrete Mathematics**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : **18**

Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Let P (x) be the statement "x can speak Russian" and let Q(x) be the statement "x knows the computer language C++." Express each of these sentences in terms of P (x), Q(x), quantifiers, and logical connectives. The domain for quantifiers consists of all students at your school.
   a) There is a student at your school who can speak Russian and who knows C++.
   b) There is a student at your school who can speak Russian but who doesn't know C++.
   c) Every student at your school either can speak Russian or knows C++.
   d) No student at your school can speak Russian or knows C++.

2. Construct truth tables for
   (i) $[(P => Q) \wedge (Q => R)] => (P => R)$
   (ii) $\sim (P => Q) \vee [(\sim P) \wedge Q] \vee Q$.

3. A bag contains 10 red marbles, 10 white marbles, and 10 blue marbles. What is the minimum no. of marbles you have to choose randomly from the bag to ensure that we get 4 marbles of same color?

खण्ड ब   अधिकतम अंक : **12**

Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Let R and S be two relations on a set A. Then if R and S are reflexive then prove that R∩S is reflexive.

5. Find using Karnaugh maps a minimal form for the boolean function.
        f (x, y, z) = xyz + xyz' + x'yz' + x'y'z'.

6. P and Q are consider to apply for a job. The probability that P applies for the job is 1/4, the probability that applies for the job given that Q applies for the job is 1/2 and the probability that Q applies for the job given that P applies for the job is 1/3. Then what is the probability that P does not apply for the job given that Q does not apply for the job?

7. Five balls are drawn from a bag containing 6 white and 4 black balls. What is the probability that 3 are white and 2 black ?

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कोर्सकोड : Course Code: **BCA-109**	कोर्स शीर्षकः– (Course Title) **C++ and Object Oriented Programming**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ अधिकतम अंक : 18
Section-A **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Declare an abstract class *"Shape"* with methods **'area'** &**'volume'**. Refine this super class to subclasses like *"cone"*, *"cylinder"* &*"Rectangular Box.* Then, Calculate area and volume for the subclasses.

2. Explain why do we need constructors? Explain a copy constructor with an example.

3. What is operator overloading? Illustrate Operator overloading concept to concatenate strings.

खण्ड ब अधिकतम अंक : 12
Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Explain input and output streams.

5. What do you mean by "this" function? What are the applications of "this" pointer?

6. What is reusability? Which things can be reused in Object Oriented Programming?

7. Write a program using a try block to detect and throw an exception if the condition "divide by zero" occurs.

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कोर्सकोड : Course Code: **BCA-111**	कोर्स शीर्षकः– (Course Title) **DBMS**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ　　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : 18
Section-A　　　　　　　　　　　　　　　　　　**Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Consider a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.
   (i) Draw an E-R diagram
   (ii) Transform the E-R diagram to a Relational Schema.

2. Consider the following ER diagram.
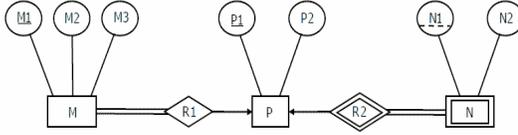
   Explain how many tables are needed to represent M, N, P, R1, R2?

3. Consider the relation R(A,B,C,D,E,G) with functional dependencies given by {AB->C, AC->B, AD-> E, B->D, BC->A, E-> G}. Consider the decomposition of R into {AB, BC, ABDE,EG}.

   a) Is this decomposition lossy or lossless? Explain why?

   b) Is this decomposition is dependency preserving or not? Explain why?

खण्ड ब　　　　　　　　　　　　　　　　　　　　　　अधिकतम अंक : 12
Section –B　　　　　　　　　　　　　　　　　　**Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

4. Identify the Normal Forms of the relation R(ABCDEF) Functional dependencies given by $\{AB \rightarrow C, C \rightarrow D, B \rightarrow E, B \rightarrow F\}$

5. Let R (ABCDEF) is a relational schema having FDs $\{A \rightarrow BCDEF, BC \rightarrow ADEF, B \rightarrow C, D \rightarrow E\}$ Find out the Candidate Key ?

6. What is derived attribute? Explain the differences between single-valued attributes and multi-valued attributes.

7. The employee information in a company is stored in the relation.

   Employee:(name,sex,salary,deptName)

   Assume name is primary key and consider the following SQL query:

   SELECT deptName FROM Employee WHERE sex='M' GROUP BY deptName

   HAVING AVG (salary)> (SELECT AVG(salary) FROM Employee);

   Explain the output of above SQL query?

कोर्सकोड : Course Code: **BCA-112**	कोर्स शीर्षकः– (Course Title) **Operating System**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Consider the following page reference string: 1,2,3,4,2,1,5,6,1,2,3,7,6,3,2,1,2,3,6. How many page faults would occur for the LRU, FIFO, LFU and optimal page replacement algorithms assuming three and five frames?

2. Consider the following table of arrival time and burst time for three processes P0, P1 and P2.

Process	Arrival time	Burst Time
P0	0 ms	9 ms
P1	1 ms	4 ms
P2	2 ms	9 ms

The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?

3. Assuming the current disk cylinder to be 50 and the sequence for the cylinders to be 1,36,49,65,53,12,3,20,55,16,65 and 78 find the sequence of servicing using

(a) Shortest seek time first (SSTF)

(b) SCAN disk scheduling policies.

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. How does thrashing occurs? Explain with an example.
5. How does a deadlock happens in a system?
6. What are the minimum requirements that should be satisfied by a solution to critical section problem?
7. What is purpose of Process Control Block?

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कोर्सकोड : Course Code: **BCA-113**	कोर्स शीर्षकः– (Course Title) **Software Engineering**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ अधिकतम अंक : 18
Section-A **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. What is Risk Management? How does software risk management related to software process improvement?
2. Define Software Development life cycle (SDLC). List the advantage and disadvantage of spiral model.
3. What is Software Testing? What are the various characteristics of a good testable software?

खण्ड ब अधिकतम अंक : 12
Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Explain differences between prototype model and spiral model.
5. Discuss the role of PERT Chart in software development.
6. What is Cohesion? How it is different from of coupling?
7. What do you understand by Software Configuration Management?

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय,इलाहाबाद

Bachelor of Computer Application कार्यक्रम अधिन्यास सत्र **2021-22**

कोर्सकोड : Course Code: **BCA-114**	कोर्स शीर्षकः– (Course Title) **Principle of Programming Languages**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ अधिकतम अंक : 18
Section-A **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Write any four important uses of programming languages. List the design principles of imperative languages.
2. Write brief notes on following:
   (a) Abstract data types (b) Polymorphism (c) Recursive sub-programs (d) Encapsulation
3. Write three applications of functional programming. Outline the pros and cons of procedures and functions.

खण्ड ब अधिकतम अंक : 12
Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Distinguish between dangling pointers and memory leakage.
5. List the benefits of modular development approach.
6. What are the differences between static and dynamic allocation?
7. Discuss the important features of a programming language.

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कोर्सकोड : Course Code: **BCA-116**	कोर्स शीर्षकः– (Course Title) **Computer Network**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. Describe the differences between the following:
   (i) Half Duplex and Full Duplex (ii) mutlicast addressing and Unicast addressing. (iii) packet switching and Circuit Switching.
2. Explain the OSI reference model with the help of a diagram. List the important functions of each layer of the model.
3. Assume message M: 1010101010 bits and generator G: 10001 bits. Explain how CRC is used for error detection using above message bits and generator bits.

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. How classful addressing is different from class-less addressing? Give the range of IP addresses used in different classes in class addressing mode.
5. Write the similarities between TCP/IP and OSI model.
6. Explain the format of TCP header through illustration.
7. Explain the working of Link State Routing Algorithm using an example.

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Bachelor of Computer Application   कार्यक्रम अधिन्यास सत्र **2021-22**

कोर्सकोड : Course Code: **BCA-117**	कोर्स शीर्षकः– (Course Title) **Java Programming**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt <u>all three questions</u> from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. What is overloading of methods? Explain with an example how overloading of methods is different from overriding of methods.
2. What is a constructor? Write a Java program to explain how super class constructors are called in their subclasses.
3. How Access Control Mechanism is implemented in Java? What Method does subclass inherit from superclass.

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Explain the use of 'this' keyword with an example.
5. Write down a java program to display number in word format, for Example: 123 will be shown as "One Two Three".
6. Differentiate between components and containers in AWT
7. What is the difference between Overloading and Overriding? Is it possible to override a inner classes.

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कोर्सकोड : Course Code: **BCA-118**	कोर्स शीर्षकः– (Course Title) **Windows Programming**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18
Section-A   **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt **all three questions** from this section.

प्रश्न संख्या 1से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. What are the advantages and disadvantages of Visual Basic over any other object-oriented language? Explain with suitable examples.
2. Write a program in VB for adding List Box, List Items, Check Box, Radio Button and Menus to your Window.
3. What are the important features of Visual Basic? Explain various control structures in Visual Basic?

खण्ड ब   अधिकतम अंक : 12
Section –B   **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt **all four questions** from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. What is event? Discuss any four events supported by visual basic.
5. What are the basic differences between checkbox and radio buttons?
6. Write a Visual Basic program to design a digital clock.
7. Explain the concept of database connectivity.

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Bachelor of Computer Application कार्यक्रम अधिन्यास सत्र 2021—22

कोर्स कोड : Course Code: **BCA-119**	कोर्स शीर्षकः— (Course Title) **Computer Organization**	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ   अधिकतम अंक : 18

Section-A   **Maximum Marks: 18**

नोट—(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words. Attempt all <u>three questions from this section.</u>

प्रश्न संख्या 1 से 3 तक दीर्घ उत्तरीय प्रश्न है जिनका उत्तर 800 से 1000 शब्दों में लिखना है।

1. (a) Implement the following Boolen Expression with NOR GATE only.
   $F (A, B, C) = \Pi(0, 2, 4, 6, 7)$
   (b) Why NAND and NOR gates are called as Universal gate.
2. What do you mean by Flip-Flop? Discuss the functions and circuits diagram of different type of flip flop?
3. What is the difference between combinational and sequential circuit? Explain with appropriate example.

खण्ड ब   अधिकतम अंक : 12

Section –B   **Maximum Mark : 12**

नोट—(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words. Attempt <u>all four questions</u> from this section.

प्रश्न संख्या 4 से 7 तक लघु उत्तरीय प्रश्न है जिनका उत्तर 200 से 300 शब्दों में लिखना है।

4. Differentiate Hardware and Micro-programmed control unit with their advantages and disadvantages.
5. What is instruction cycle? When will be any interrupt processed during the instruction cycle?
6. What is DMA? Explain DMA transfer modes in detail.
7. What do you mean by memory hierarchy? Why registers are present in CPU?