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उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम

Master of Computer Application Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.

Subject : Computer Subject Code: MSC-CS

Science कोर्स कोड : एम.एस.सी.-सी.एस.-01

कोर्स शीर्षक : Course Code : MSC-CS-01

Course Title: Discrete
Mathematical
Structure

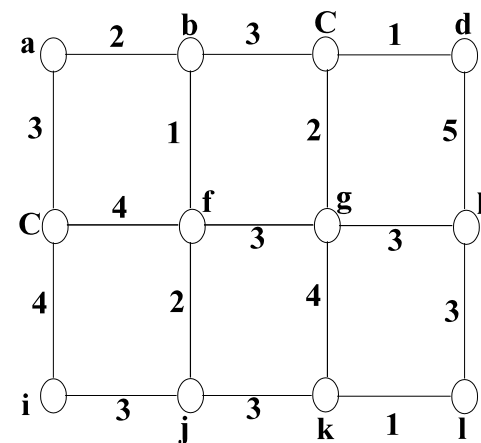
अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

- 1.(a) Construct a truth table for each of the compound properties. 4
 - (i) $(p \rightarrow q) \vee (7p \rightarrow 7r)$
 - (ii) $(p \leftrightarrow q) \leftrightarrow (7p \rightarrow q)$
- (b) Test the validity of the following argument. 2
If, I study, then I will not fail mathematics;
If, I do not play basket ball, then I will study. But I failed mathematics. Therefore, I must have played basket ball.
- 2.(a) What is a bipartite graph? How can you determine whether an undirected graph is bipartite? 3
- (b) Discuss the travelling salesman problem. 3
3. Use the algorithm of Prim's or Kruskal's, to find a minimum spanning tree of the following graph. 6



Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What do you mean by the rank and nullity of a graph? Discuss the rank and nullity of a complete Graph of n vertices. 2
5. Discuss the incidence matrix and adjacency matrix representation of a Graph. 2
6. Write the conjunctive normal form of the function— 2
 $(X \cdot Y^1 + X \cdot Z)^1 + X^1$
7. Draw the circuit represented by the following Boolean function. 2
 $f : xy + \bar{x}y$
8. Prove that 2
 $[(((pvq) \Rightarrow r) \wedge (7p))] \Rightarrow (q \Rightarrow r)$ is a tautology.
9. What do you understand by a directed Graph? Discuss the degree in directed Graph and explain the types of directed Graph. 2

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Master of Computer Application Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.

Subject : Computer Subject Code: MSC-CS

Science कोर्स कोड : एम.एस.सी.-सी.एस.-02

कोर्स शीर्षक : Course Code : MSC-CS-02

Course Title: Introduction to
Programming
language
through 'C'

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What are various data types used in C? Write its range and format also? 6
2. (a) Discuss about arithmetic operators and relational operators. 3
- (b) Differentiate between break and continue statements in C language with example. 3
- 3.(a) A company insure its drivers in the following case. 4
 - If the drivers is married.
 - If the drivers is unmarried, male and above 30 year of age.

- If the driver is unmarried female and above 25 year of age.

In all other case, the driver is not insured. Write a C program without using logical operator to determine whether the driver is insured or not.

- (b) Differentiate between the nested.... if and the switch statement in C language with suitable example. 2

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Write the output/error of the following code with explanation. 2

(a) main ()

```
{  
    char * str1 = "abcd" ;  
    char str 2 [ ] = "abcd" ;  
    print f ("%d%d%d", size of (str1), size of (str2), size of  
("abcd")); Z  
}
```

(b) Main ()

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

5. What is the difference between call by value and call by reference parameter passing techniques. 2
6. Write a program to find maximum and minimum elements of an array of size N. 2
7. What do you mean by storage classes in C language. Write the difference between static and automatic storage class. 2
8. Write a program in C language to generate the given series upto terms less than 200. 2
1 - 4 + 9 - 16 + 25
9. Differentiate between while and do-while loop with example. 2

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2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम (एम०एस०सी०)

Master of Computer Science Programme (M.Sc.)

विषय : विषय कोड : एम.सी.एस.

Subject : Data structure Subject Code: MCS

कोर्स शीर्षक : कोर्स कोड : एम.सी.एस.-03

Course Title: Data structure Course Code : MCS-03

अधिकतम अंक : 30

Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18

Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. Explain the concept of list. Mention their advantages and disadvantages. 6
2. What are the Binary Tree? Mention their properties. Also define the term "complete Binary tree". 6
3. Explain the various stack operation. Also write the algorithm for array implementation of stack. 6

Section - B

अधिकतम अंक : 12

Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What do you mean by linear search. 2
5. Evaluate the following post fine operation using stack. 2
6. What is merge sort. 2
7. What do you mean by height Balanced Tree. 2
8. What is sparse Matrix. 2
9. Explain the depth first search algorithm of graph traversal. 2

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2014-2015

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Master of Computer Application Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.
Subject : Computer Science Subject Code: MSC-CS
कोर्स शीर्षक : कोर्स कोड : एम.एस.सी.-सी.एस.-04
Course Title: Digital computer fundamental and assembly language programming Course Code : MSC-CS-04

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1.(a) Implement the following Boolean Expression with NOR GATE only. 3

$$F(A, B, C) = \prod (0, 2, 4, 6, 7)$$

(b) Why NAND and NOR gates are called as Universal gate. 3

2. What is Cache memory? Discuss the different mapping process while considering the organization of cache memory. 6

3. Design a digital circuit that perform the four logic operations of exclusive - OR, exclusive - NOR, NOR and NAND. Use two selection variables. Show the logic diagram of an typical stage. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. With the help of block diagram, discuss working of direct memory Access (DMA). 3

5. Draw logic diagram of Arithmetic circuit that performs addition, subtraction, Increment and decrement operations. 3

6. What are the advantages and disadvantages of hardwired and microprogrammed control? 3

7. Describe the roll of buses in any system. For which purpose they are used? Explain the different types of buses with suitable examples. 3

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम

Master of Computer Science Programme

विषय : विषय कोड : एम.सी.एस.

Subject : Theory of Subject Code: MCS

Computers कोर्स कोड : एम.सी.एस.-06

कोर्स शीर्षक : Course Code : MCS-06

Course Title: Theory of
Computers

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. Prove that if L is a regular set then L is genared by some left linear grammar and right linear grammar. 6
2. State nd prove the pumping Lemma using the pumpery Lemma show that the langauge $L = \{a^n b^n c^n / n \geq 1\}$ is not a CFL. 6
3. What is pushdown Automata? Explains how context free langauge is accepted by PDA. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is the difference between DFA and NFA. 2
5. Define the context free langauge. 2
6. What is a context sensitive langauge. 2
7. What is undecidable problem. 2
8. When do you say that a Tuning machine accepts a string. 2
9. What are the differences between CNF and GNF of grammar. 2

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2014-2015

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Post Graduate Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.
Subject : Computer Subject Code: MSC-CS
Science कोर्स कोड : एम.एस.सी.-सी.एस.-07
कोर्स शीर्षक : Course Code : MSC-CS-07

Course Title: Digital
computer
fundamental and
assembly
language
programme
mining

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

- 1.(a) What are the importance of flowchart. Draw flowchart to calculate factorial of a given number. 3
- (b) With a neat block diagram, explain various phase of compiler. 3
2. Explain the following 6
 - (i) Short term scheduler
 - (ii) Long term Scheduler
 - (iii) Medium term Scheduler
- 3.(a) Write the difference between assembler and compiler. 6

- (b) Design a transition diagram for the language consisting of all the string with all over the set {0, 1}.

Section - B

अधिकतम अंक : 12

Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What are different reasons to study of OS? State the basic functions of OS. 3
5. Differentiate between Interactive and batch processing system. 3
6. Discuss the paging system for memory management in details. Also gives it advantages and disadvantages. 3
7. Explain different conditions of deadlock. Write the method for deadlock prevention? 3

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम (एम०एस०सी०)

Master of Computers Science Programme (M.Sc.)

विषय : विषय कोड : एम.सी.एस.
Subject : Computer Graphics Subject Code: MCS
कोर्स कोड : एम.सी.एस.-08
कोर्स शीर्षक : Course Code : MCS-08
Course Title: Computer Graphics

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is software analysis? What are the various step required during the analysis process. 6
2. What is coupling? How it differ from cohesion? Explain with the help of examples. 6
3. What is testing? Explain the Black box testing and while box testing. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What are software matrioces. 2
5. What is test case? 2
6. What is SRS. 2
7. What is COCOMO Model. 2
8. What is software design. 2
9. Wht do you mean by DFD. 2

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर कार्यक्रम

Post Graduate Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.

Subject : Computer Subject Code: MSC-CS

Science कोर्स कोड : एम.एस.सी.-सी.एस.-09

कोर्स शीर्षक : Course Code : MSC-CS-09

Course Title: Object Oriented Programming

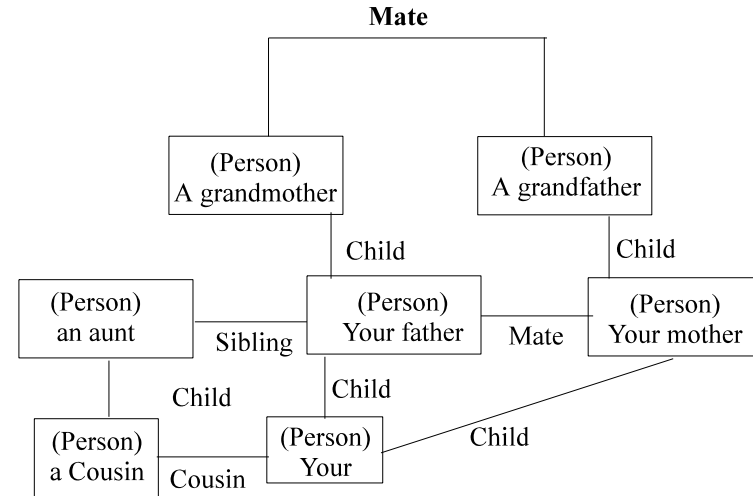
अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is object orientation? Explain the basic characteristics of Object Oriented System. 6
- 2.(a) Define aggregation generalization. Explain. 3
- (b) What do you mean by polymorphism? Explain it with example. 3
3. What is the difference between a class diagram and an instance diagram? Discuss the significance of each. Also prepare a class diagram for the following instant diagram as given in Figure 1. 6



(Figure 1)

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is difference between a character array and string? 3
5. What is the difference between operator overloading and constructor overloading. 3
6. Explain the following with example— 3
- (a) Run time Polymorphism.
- (b) Compile time polymorphism.
7. What are the advantages and disadvantages of single inheritance over multiple inheritance. 3

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम (एम०एस०सी०)

Master of Computers Science Programme (M.Sc.)

विषय : विषय कोड : एम.सी.एस.
Subject : Computer Subject Code: MCS
Graphics कोर्स कोड : एम.सी.एस.-11
कोर्स शीर्षक : Course Code : MCS-11
Course Title: Computer
Graphics

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What are applications of computer Graphics. 6
2. What do you mean by Shearing? Explain the shearing in x directions and y direction by showing through diagrams. 6
3. What is Raster graphics? Differentiate between raster and vector graphics. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What do you mean by point of protection. 2
5. List the various transformation in two and three dimensional transformations. 2
6. What are the various types of curve available. 2
7. Explain the use of clipping. 2
8. List the various display devices. 2
9. What do you mean by irregular window clipping. 2

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2014-2015

परास्नातक कम्प्यूटर कार्यक्रम

Post Graduate Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.
Subject : Computer Science Subject Code: MSC-CS
कोर्स शीर्षक : कोर्स कोड : एम.एस.सी.-सी.एस.-12
Course Title: Data Base Management System Course Code : MSC-CS-12

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is three-tier client/server architectures? Also differentiate between logical data independence and physical data independence. 6
2. What is an entity type? What is an entity set? Explain the differences among an entity, an entity type, and an entity set. 6
3. Discuss the purpose of Boyce-codd normal form and describe how BCNF differs from and is stronger than 3NF. Illustrate your answer with an example. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is primary key & candidate key? 2
5. What is referential integrity constraints of the relational data model? 2
6. What are the functions of DBA? 2
7. What role does the concept of foreign key. 2
8. What is difference b/w a knowledge base system and a database system. 2
9. Define RDBMS and OODBMS with example. 2

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर कार्यक्रम

Post Graduate Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.
Subject : Computer Science Subject Code: MSC-CS
कोर्स शीर्षक : कोर्स कोड : एम.एस.सी.-सी.एस.-13
Course Title: Operating System Course Code : MSC-CS-13

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What do you understand by critical section? What are the requirements of a solution to the critical section problem? 6
2. What are necessary conditions for deadlock to occur? Also explain deadlock detection algorithm for single instance of each resource type. 6
3. Define virtual memory concepts and also discuss page replacement algorithms in brief. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is PCB? Also explain each component of PCB. 2
5. What is thrashing. 2
6. What is paging? Also explain physical address and logical address. 2
7. What are user level thread and kernel level thread? 2
8. What is internal and External fragmentation. 2
9. What are the different file organizations? 2

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2014-2015

परास्नातक कम्प्यूटर कार्यक्रम

Post Graduate Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी.-सी.एस.
Subject : Computer Science Subject Code: MSC-CS
कोर्स कोड : एम.एस.सी.-सी.एस.-14
कोर्स शीर्षक : Course Code : MSC-CS-14
Course Title: Computer Network

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is OSI reference model? Explain each layer in brief. 6
2. What is baseband and broadband communication system? Also give the ISDN Services. 6
3. What is ATM layered Architecture? Also compare ATM Layered Architecture with OSI Model. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is a peer-to-peer process? 2
5. What is the difference between a port address, a logical address, and a physical address? 2
6. Name the advantages of optical fiber over twisted-pair and coaxial cable. 2
7. List four major components of a packet switch and their functions. 2
8. What is a mask in IPv4 addressing? 2
9. What is DNS? Explain with example. 2

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अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम

Master of Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी-सी.एस.

Subject : Computer Science Subject Code: M.Sc.-CS

कोर्स शीर्षक : कोर्स कोड : एम.एस.सी-सी.एस.-16

Course Title: Artificial Course Code : M.Sc.-CS-16

Intelligence

अधिकतम अंक : 30
Maximum Marks : 30

खण्ड - 'अ'

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

नोट : दीर्घ उत्तरीय प्रश्न। प्रश्नों के अपने उत्तर 800 से 1000 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What do you mean by knowledge representation? Discuss the role of predicate calculus for representing knowledge. 6
2. Give the advantage of expert system Architecture based on decision trees over those of production rules with example. What are the main disadvantages. 6
3. What is an object? Define it with the help of decision theoretic classification in detail. How an object or an item and its properties can be represented in LISP? 6

खण्ड - 'ब'

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Represent the following sentences in symbolic logic : 2
(i) All students like good teachers.
(ii) All that glitters is not gold.
(iii) Fruits and vegetables are delicious.
(iv) Jack and Jill went up the hill.
5. Show that : 2
 $(\exists z) (\forall x) [p(x) \Rightarrow Q(z)]$ and
 $(\exists z) [(\exists x) p(x) \Rightarrow Q(z)]$ and equivalent.
6. Explain the concept of conceptual Dependencies and Associative Networks in AI. 2
7. Explain the properties of Wffs. 2
8. Differentiate between Iterative and Recursive. Define property list and Arrays in AI. 2
9. Explain the concept of Natural Language processing. 2

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उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2014-2015

परास्नातक कम्प्यूटर विज्ञान कार्यक्रम

Master of Computer Science Programme

विषय : कम्प्यूटर विज्ञान विषय कोड : एम.एस.सी-सी.एस.

Subject : Computer Science Subject Code : M.Sc.-CS

कोर्स शीर्षक : कोर्स कोड : एम.एस.सी-सी.एस.-17

Course Title: Core Java Course Code : M.Sc.-CS-17

अधिकतम अंक : 30

Maximum Marks : 30

खण्ड - 'अ'

Section 'A'

अधिकतम अंक : 18

Maximum Marks : 18

नोट : दीर्घ उत्तरीय प्रश्न। प्रश्नों के अपने उत्तर 800 से 1000 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What do you mean by programming constructs? Explain different type of programming constructs used in Java. 6
2. What do you mean by exception handling in Java? Explain different type of keywords which are used for exception handling in Java. 6
3. What do you mean by Access controls in Java? Explain different type of access specifier used in Java. 6

खण्ड - 'ब'

Section - B

अधिकतम अंक : 12

Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Differentiate between extends and implements keywords. 2
5. Explain the different use of final keywords, used in Java. 2
6. Explain the purpose of static keyword in Java. 2
7. What do you mean by constructor in Java? Define wrapper class and their use in Java. 2
8. Differentiate between Java Applets and Java Application. 2
9. What do you mean by type casting? Explain four different bitwise operators which are used in Java. 2