

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर  
Subject : Computer  
कोर्स शीर्षक :  
Course Title : Fundamentals and  
PC Software

विषय कोड: बी.सी.ए  
Subject Code : B.C.A  
कोर्स कोड : बी.सी.ए-1.1  
Course Code: B.C.A.-02(0)/  
B.C.A.-1.1(N)

अधिकतम अंक : 30  
Maximum Marks: 30

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

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. Explain the different classification of Computers?
2. What are the different categories of languages? Explain various elements of a programming language.
3. What are different data communication modes? Explain them

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

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

4. Explain the terms: Serial Processing, Batch Processing and Multiprogramming
5. Differentiate between Star, Bus and Ring topology.
6. Explain the steps to perform 'Find and Replace' in MS Word.
7. What is a computer virus? Explain different types of computer viruses?.
8. Differentiate GUI & CUI. List the advantages of GUI over CUI.
9. What is mail merge? How envelopes can be print by using Mail Merge command?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए-1.2

Course Title : C Programming and data structure

Course Code: B.C.A.-05(O)

B.C.A.-1.2(N)

अधिकतम अंक : 30  
Maximum Marks: 30

Note: Long Answer Questions. All questions are compulsory.

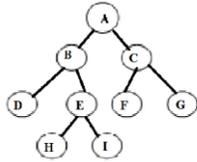
## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Suppose A is a header of circular linked list in memory. Write a program in C which deletes the last node from A.
2. Convert the following infix expression into postfix expression using stack.
  - (i)  $(a-b*(f+g * h)) * (d/e-f)$
  - (ii)  $(a + b \uparrow d)/(e-f) + g$
3. Obtain the following traversal for the given tree:



(i) Inorder traversal

(ii) Postorder traversal

## Section – B

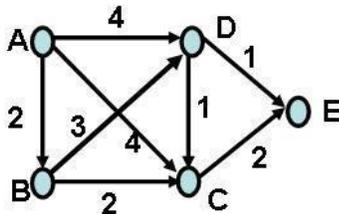
खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Find shortest distance between node A and E using Dijkstra's algorithm



5. Explain Breadth First Search and Depth First Technique in graph?
6. What is hashing?. Explain Division and Mid-square method for hashing.

7. Explain Insertion and bubble sort with the help of example.
8. What is linked list? Write its advantages over sequential representation.
9. Write a C function that accepts an integer as parameter and uses a stack to print all its divisors in descending order.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए-1.3

Course Title : Foundation Course in  
Mathematics

Course Code: B.C.A.-04(O)  
B.C.A.-1.3(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Long Answer Questions. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

√

1. State and prove Lagrange's mean value theorem . [6]

2. Find  $\left[\frac{dy}{dx}\right]$  if  $y = \log \frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}}$  [6]

3. Determine the intervals in which the function  $f(x) = 1+x+x^2 - 1-x+x^2, x \in \mathbf{R}$  is increasing or decreasing.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. All questions are compulsory.

4. Evaluate  $\int (x+1)e^x (xe^x+5)^4 dx$

5 Find the area bounded by the curve  $y=\sqrt{x}$  and  $y=x$ .

6 If 1, w and  $w^2$  are cube root of unity then show that  $(1+w)^2 - (1+w)^3 + w^2 = 0$ .

7 Evaluate  $\lim_{x \rightarrow 0} \frac{\sqrt{(1+x)}-1}{x}$

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए- ई 1

Course Title : Designe and analysis of  
Algorithm

Course Code: B.C.A.-E1

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

## Section - A

खण्ड - अ

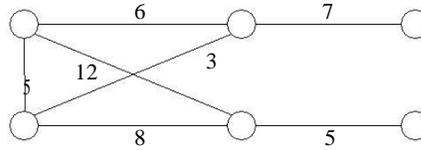
अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the greedy method. Write any two characteristics of Greedy Algorithm?
2. Analyze the time complexity of the following segment:

```
for(i=0;i<N;i++)  
for(j=N/2;j>0;j--)  
sum++;
```

3. Find the minimum spanning tree using Prim's and Kruskal's algorithm for the following graph.



## Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

4. Define the terms: pseudocode, flow chart
5. What is Merge sort? Is insertion sort better than the merge sort?
6. What are NP- hard and Np-complete problems?
7. Write an  $\theta(\lg n)$  time algorithm to compute  $x^n$  for a real number  $x$  and integer  $n \geq 0$ .
8. Write an iterative algorithm for finding simultaneous maximum and minimum values from the set of 'n' numbers. Your algorithm should have  $((3n/2) - 2)$  number of comparisons.
9. Compare the two functions  $n^2$  and  $2^n/4$  for various values of  $n$ . Determine when the second becomes larger than the first.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए- ई 2

Course Title : Theory of Computation

Course Code: B.C.A.-18 /  
B.C.A.-E2

अधिकतम अंक : 30  
Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. Design a DFA to accept the binary numbers which are divisible by 5.
2. State pumping lemma for regular languages.
3. Obtain the following grammar in CNF

$S \rightarrow aBa \mid abba$   
 $A \rightarrow ab \mid AA$   
 $B \rightarrow aB \mid a$

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

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

4. Construct a DFA for the language 'all strings with 011 as a substring', over alphabet  $\{0, 1\}$ .
5. Construct a Mealy machine which is equivalent to the Moore machine given in table:

Present State	Next State		Output
	a=0	a=1	
q <sub>0</sub>	q <sub>3</sub>	q <sub>1</sub>	0
q <sub>1</sub>	q <sub>1</sub>	q <sub>2</sub>	1
q <sub>2</sub>	q <sub>2</sub>	q <sub>3</sub>	0
q <sub>3</sub>	q <sub>3</sub>	q <sub>0</sub>	0

6. Find regular expression for the following languages on  $\{a,b\}$ :  
 $L = \{a^n b^2 m : n \geq 0, m \geq 0\}$
7. Obtain CFG for the language  $L = \{ww^R \mid w \in \{a, b\}^*\}$ ,  $w^R$  is the reversal of  $w$ .
8. How TM can be simulate by a production system?
9. What do you meant by parse Tree?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर  
Subject : Computer  
कोर्स शीर्षक :  
Course Title : Database Management System

विषय कोड: बी.सी.ए  
Subject Code : B.C.A  
कोर्स कोड : बी.सी.ए-1.5  
Course Code: B.C.A.-08(O)  
B.C.A.-1.5(N)

अधिकतम अंक : 30  
Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. The tourism department wishes to computerize its data. The information consists of monuments of tourist interest, their. Region and history. Monuments are classified according to historical, religious and architecture importance. The list of facilities available at each sport is available. These give living accommodation in terms of hotels, their names, category and the number of rooms available and local transport facilities in terms of service provider name, tour with their tariff and timing.  
(i) Draw an E-R diagram  
(ii) Transform the E-R diagram to a Relational Schema.
2. How do RDBMS provide ACID properties (atomicity, consistency, isolation, durability)?
3. What are the classifications of schedules based on recoverability? Explain the the Relationship and differences among these Schedules?

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

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

4. Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is one-to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. What is the minimum number of tables required to represent this situation in the relational model? Briefly explain how your answer.
5. The relation schema Student\_Performance (name, courseNo, rollNo, grade) has the following FDs:

name,courseNo->grade  
rollNo,courseNo->grade  
name->rollNo  
rollNo->name

The highest normal form of this relation scheme is?

6. 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 dependency preserving or not? Explain why?

7. Define the following with suitable examples.

(i) Entity integrity.

(ii) Referential integrity.

8. Explain different type of locking protocols for concurrency control. Which concurrency control protocols ensure both conflict serializability and freedom from deadlock?

9. Check whether the schedule is conflict serializable or not?

S: R3(y); R3(z); R1(x); W1(x); W3(y); W3(z); R2(z); R1(y); W1(Y); R2(y); W2(y)

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

## Bachelor of Computer Applications (BCA)

विषय : कम्प्यूटर  
Subject : Computer  
कोर्स शीर्षक :  
Course Title : RDBMS

विषय कोड: बी.सी.ए

Subject Code : B.C.A

कोर्स कोड : बी.सी.ए-1.6

Course Code: B.C.A.-12(O)/  
B.C.A.-1.6(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

### Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):  
The NHL has many teams, each team has a name, a city, a coach, a captain, and a set of players, each player belongs to only one team, each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records, a team captain is also a player, a game is played between two teams (referred to as host\_team and guest\_team).  
(i) Draw an E-R diagram  
(ii) Transform the E-R diagram to a Relational Schema.
2. Explain the differences between the strong entity and weak entity set with suitable example. What are the multivalued attribute? How do the RDBMS handle the multivalued attribute.
3. What is referential integrity and why is it important? Explain different referential integrity constraints violations with suitable examples.

### Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is one-to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. What is the minimum number of tables required to represent this situation in the relational model? *Briefly explain how your answer.*
5. The relation schema Student\_Performance (name, courseNo, rollNo, grade) has the following FDs:  
name,courseNo->grade  
rollNo,courseNo->grade  
name->rollNo  
rollNo->name

The highest normal form of this relation scheme is?

6. Consider the relation  $R(A,B,C,D,E,G)$  with functional dependencies given by  $\{AB \rightarrow C, AC \rightarrow B, AD \rightarrow E, B \rightarrow D, BC \rightarrow A, E \rightarrow G\}$ . 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?

7. Consider the following relations:

Student(snum: integer, sname: string, major: string, level: string, age: integer)

Class(name: string, meets at: string, room: string, fid: integer) Enrolled(snum: integer, cname: string)

Faculty(fid: integer, fname: string, deptid: integer)

The meaning of these relations is straightforward;

For example, Enrolled has one record per student-class pair such that the student is enrolled in the class.

Write the following queries in SQL. No duplicates should be printed in any of the answers.

(i) Find the names of all Juniors (level = JR) who are enrolled in a class taught by I. Teach.

(ii) Find the age of the oldest student who is either a History major or enrolled in a course taught by I. Teach.

8. Explain different type of locking protocols for concurrency control. Which concurrency control protocols ensure both conflict serializability and freedom from deadlock?

9. Check whether the schedule is conflict serializable or not?

**S: R3(y); R3(z); R1(x); W1(x); W3(y); W3(z); R2(z); R1(y); W1(Y); R2(y); W2(y)**

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए-1.7

Course Title : BASIC ELECTRONIC

Course Code: B.C.A.-1.7

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is modulation and demodulation? Why they are required in communication system.
2. What is an Oscillator? Why it is needed ? Discuss the advantage of an Oscillator.
3. Explain RC coupled amplifier in detail with suitable example.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions.All questions are compulsory.

4. Explain the difference between Zener and avalanche breakdown.
5. Explain universal logic gates? How they can be converted into each other?
6. Explain CB, CE and CC configuration in detail.
7. What do you mean by Operational Amplifier? Write the characteristics.
8. Explain half wave and full wave rectifier with proper diagram.
9. Draw and explain the working of emitter follower.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए- ई 3

Course Title : Data mining and warehousing

Course Code: B.C.A.-E3

अधिकतम अंक : 30

Maximum Marks: 30

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. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

- (a) Explain basic data mining tasks with an example.  
(b) Give details on data mining versus knowledge discovery in databases.
- (a) Discuss data mining issues and data mining metrics.  
(b) Define the terms: confidence, cleaning, consequent, cross validation
- (a) Give an overview of Applications of data mining.  
(b) Discuss issues to consider during data integration

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

- Explain various data reduction techniques.
- Briefly discuss the forms of Data preprocessing with neat diagram.
- Explain about concept hierarchy generation for categorical data.
- Draw and explain the architecture of typical data mining system.
- Differentiate OLTP and OLAP.
- Explain data mining as a step in the process of knowledge discovery

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर  
Subject : Computer  
कोर्स शीर्षक :  
Course Title : E-Commerce

विषय कोड: बी.सी.ए  
Subject Code : B.C.A  
कोर्स कोड : बी.सी.ए.-ई 4  
Course Code: B.C.A.-E4

अधिकतम अंक : 30  
Maximum Marks: 30

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. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. Discuss the advantages and disadvantages of Electronic Commerce [6]
2. What do we mean by Electronic Data Interchange? Explain the architecture of EDI with the help of a diagram . [6]
3. Discuss the different classifications of Electronic Commerce. [6]

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

नोट : लघु उत्तरीय प्रश्न। प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

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

4. Briefly describe the following: [3]
  - a. Firewalls
  - b. Domain Name System
5. What do we mean by Electronic Fund Transfer? What are the different ways in which fund transfer can be done electronically? [3]
6. What are the essential requirements for a safe e-payment ? [3]
7. Discuss the applications of Electronic Commerce technology. [3]

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.9(N)

Course Title : C++ and Object Oriented  
Programming

Course Code: B.C.A.-17(O)/  
B.C.A.-1.9(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Discuss in detail the characteristics of an object oriented programming system. [6]
2. Discuss with examples how the two types of polymorphism namely compile time polymorphism and run time polymorphism are achieved in C++. [6]
3. Write a C++ program to read the contents of a file and display it on the screen. [6]

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

- Explain with the help of an example the difference between multiple and multi-level inheritance. [3]
4. List the characteristics of a constructor [3]
  5. What is the use of a friend function? What are its characteristics? [3]
  6. What is the difference between UML structural diagram and UML behavioural diagram? [3]
  7. diagram? [3]

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.10(N)

Course Title : Multimedia

Course Code: B.C.A.-11(O)/

B.C.A.-1.10(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What do you understand by multimedia? What are the commercial tools available for developing multimedia?
2. Explain the benefits and problems in multimedia with multimedia system components?
3. Discuss in detail on multimedia platforms and illustrate cross platform compatibility and standards.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Explain the various digital movie tools.
5. What is meant by Image Compression?
6. How is animation useful in multimedia?
7. Write short note on:
  - (a) MPEG
  - (b) MP3
8. What do you understand by the term Multimedia and Hypermedia.
9. Explain any two multimedia features which can be used in business.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.11(N)

Course Title : Element of System Analysis  
And Design.

Course Code: B.C.A.-07(O)/  
B.C.A.-1.11(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the following:
  - a) Project
  - b) Project scheduling
  - c) Critical Path
  - d) Milestones
  - e) Checkpoints
  - f) Project review.
2. What is strategic planning? Relate strategic planning to management control and operational control.
3. With respect to purchasing and inventory control systems explain any three of the following:
  - a) Why do retail outlets carry inventory
  - b) Inventory carrying cost.
  - c) Procurement lead time
  - d) Bill of material.

## Section – B

खण्ड - ब

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 decision table and decision tree.
5. What are the attributes of good analyst?
6. Explain the system development life cycle.
7. Distinguish between hierarchical structure and network structure.
8. Define Bench Mark?
9. What is brain storming?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए.-ई 5

Course Title : **Object oriented Anayalasis  
And Designe**

Course Code: B.C.A.-E5

अधिकतम अंक : 30

Maximum Marks: 30

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. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What do you mean by "Object Oriented". Explain the characteristics of object-oriented approach.
2. Differentiate between
  - (a) Class diagram & Instance diagram
  - (b) Links & association
3. Explain Aggregation & Generalization in detail with suitable example.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

नोट : लघु उत्तरीय प्रश्न। प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

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

4. Describe how class diagram, object diagram and generalization are represented with UML Diagram.
5. What do you mean by the *State Diagram* and the *Event Trace Scenario*? Draw the Event Trace Scenario for a Phone Call and the State Diagram for Phone Line.
6. What is the relationship between cohesion and coupling? Identify the type of coupling in the following. How can it overcome?
7. How does object relational database differ from object oriented databases?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए.-ई 6

Course Title : JAVA PROGRAMING

Course Code: B.C.A.-E6

अधिकतम अंक : 30

Maximum Marks: 30

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.  
All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. State four features of java. How we create classes?
2. (a) Describe dynamic dispatch method with example.  
(b) Explain the following terms with respect to exception handling.  
(i) try (ii) catch (iii) throw (iv) finally
3. (a) What is a thread? Describe the complete life cycle of thread.  
(b) Why Java is called machine independent language? Explain the functionality of JVM.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

नोट : लघु उत्तरीय प्रश्न। प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

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

4. Write a program to create two threads, one thread will print odd numbers and second thread will print even numbers between 1 to 20 numbers.
5. What is the main difference between Readers/Writers and Input/Output streams?
6. What is a string buffer? How does it differ from a string? Give the three ways of creating a string object.
7. Describe the usage of ByteStream classes with examples.
8. Write a program to compare two strings.
9. What is the difference between process based and thread based multitasking? Give the two ways by which a thread can be created using java.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.11(N)

Course Title : Computer Network

Course Code: B.C.A.-13(O)/

B.C.A.-1.13(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Write short notes on the following: [6]
  - a. Hub
  - b. Repeater
  - c. Switch
2. What do we mean by Multiplexing? Explain the three different types of multiplexing techniques. [6]
3. Explain the OSI reference model with the help of a diagram. Give brief description of each layer of the model

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Briefly explain the use of Bridges. [2]
5. List the protocols used for host to host communication in the transport layer of TCP/IP model. What are the important differences between these two protocols? [3]
6. Differentiate between multicast addressing and Unicast addressing. [2]
7. What is a parity bit? What is it used for? Explain with example. [2]
8. What do we mean by class addressing and class-less addressing? Give the range of IP addresses used in different classes in class addressing mode. [3]

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.14(N)

Course Title : Operating System

Course Code: B.C.A.-15(O)/

B.C.A.-1.14(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Explain Real Time operating system, Semaphore and Deadlock Avoidance.
2. Explain the structure of UNIX and Windows Operating Systems.
3. How PCB (Process Control Block) helps in process management? Explain the structure of PCB.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Explain the concepts of segmentation and paging with the help of neat diagram.
5. Consider a logical address space of 8 pages of 1024 words each, mapped on to a physical memory of 32 frames. How many bits are there in the logical and physical address respectively?
6. Mention the major attributes and operations of a file.
7. Consider the following set of processes:

Process	Arrival time	Processing time
P <sub>1</sub>	0	7
P <sub>2</sub>	3	2
P <sub>3</sub>	4	3
P <sub>4</sub>	4	1
P <sub>5</sub>	5	3

Find out the average waiting time and average turnaround time for

(a) FCFS

(b) SJF

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड :बी.सी.ए1.1.15(N)

Course Title : Windows Programming

Course Code: B.C.A.-10(O)/

B.C.A.-1.15(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is a form? What are the form properties? Create a new form with new name "TESTFORM".
2. What is a custom control? Load any picture on picture control. Set its properties as per your choice.
3. What do you understand by data base management? How do you create database using Microsoft Access? Create a new table items with your choice.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Explain steps of attaching a table from Microsoft Access.
5. Write an event procedure to find the square root of a given number.
6. Explain process of creating activex DLLS.
7. Create an application which prints "hello my first program" in a text box on a button click.
8. Explain visual components of visual basic.
9. Create a project and save with name "TESTPROJECT". Write code such that whenever project is loaded it gives you beep sound.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए.-ई 7

Course Title : Network Programing

Course Code: B.C.A.-E7

अधिकतम अंक : 30  
Maximum Marks: 30

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.  
All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. What are the five functions used to perform file I/O on a UNIX system? Elaborate each function with example.
2. Define process identifier. Explain the operation of 'fork' function. List the similarities and differences between parent and child process.
3. What are basic I/O models under UNIX? Explain them in detail.

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

नोट : लघु उत्तरीय प्रश्न। प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।

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

4. What is sticky bit?
5. Mention the limitations of pipes.
6. Mention any four socket functions for elementary TCP client server.
7. Give diagram for simple echo client server.
8. Explain the steps in raw socket creation.
9. Explain how a system call is different from Library function?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए.-ई 8

Course Title : Mobile Computing

Course Code: B.C.A.-E8

अधिकतम अंक : 30  
Maximum Marks: 30

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.  
All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. (a) Explain various generation of wireless networks.  
(b) What is mobile computing? Draw architecture of mobile computing with various applications of mobile computing.
2. (a) Explain IPv4. What are the advantages of IPv6 over IPv4.  
(b) Explain the concept of IP packet delivery in a mobile system.
3. (a) What is Mobile TCP? What are the disadvantages of conventional TCP to incorporate in wireless environment?  
(b) What is Mobile TCP? Explain selective retransmission.

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

नोट : लघु उत्तरीय प्रश्न । प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं ।

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

4. Explain about the IP mobility support concept.
5. List the differences between IPv4 and IPv6.
6. Explain about the selective retransmission.
7. Define GSM Architecture.
8. Define HLR and VLR.
9. Explain about the handover concept.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए1. -14

Course Title : TCP/IP Programming

Course Code: B.C.A.-14

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

- (a) Why has TCP /IP become a standard protocol for the Internet?  
(b) Identify the address classes of the following IP addresses:  
(i) 196.201.190.6 (ii) 120.10.10 .77  
(iii) 112.196. 112.19 (iv) 150.150.15.15
2. What is 3-way handshake mechanism? Also, explain how the mechanism is used for establishing and terminating a TCP connection.
3. What are the limitations of IPv4 address classes? How are a large number of IP addresses wasted using IPv4 address classes? What are the possible solutions to the limitations of IP addressing?

## Section – B

खण्ड - ब

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 minimum and maximum size of an IP datagram?
5. What is the minimum and maximum size of an IP datagram header?
6. What are the different types of criteria that can be specified using the Type of service field?
7. List the important domain names used in Internet. How does the name resolution take place in DNS? Explain it with the help of a diagram.
8. ARP and RARP both map addresses from one space to another. In this respect, they are similar. In what way do they differ? (3)
9. Why do we need a DNS system when we can directly use an IP address? What are the three domains of the domain name space? What is the purpose of the inverse domain?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए. -16

Course Title : Computer Oriented Numerical Tech.

Course Code: B.C.A.-16

अधिकतम अंक : 30  
Maximum Marks: 30

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

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. Solve the following system of equation by Gauss Elimination method: [6]

$$4x_1 + x_2 + x_3 = 4$$

$$x_1 + 4x_2 - 2x_3 = 4$$

$$3x_1 + 2x_2 - 4x_3 = 6$$

2. Use Lagrange's interpolation to find the value for  $x=3$  in the following table: [6]

$x$ : 3.2 2.7 1.0 4.8

$f(x)$ : 22.0 17.8 14.2 38.3

3. Using divided difference, show that the following data represents a third degree polynomial.

Obtain this polynomial. Hence, find the value of  $f(5)$ . [6]

$x$ : 0 2 3 4 7

$f(x)$ : 4 26 58 112 466

## Section – B

खण्ड - ब

अधिकतम अंक : 12  
Maximum Marks: 12

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

4.. Interpret Newton-Raphson method geometrically.

5.. Distinguish between Newton's divided difference interpolation and Lagrange's interpolation?

6.. Which of the iterative methods for solving linear system of equations converge faster? Why?

7. . Solve the following equation using Newton-Raphson method:

$$x^2 - 4x^2 + 4 = 0$$

8. If  $\pi = 22/7$  is approximated as 3.14, find the absolute error and relative error respectively.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड : बी.सी.ए. -19

Course Title : Introduction to Software Engineering

Course Code: B.C.A.-19(O)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

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

## Section – B

खण्ड - ब

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 the verification and validation process?
5. What are the different testing levels?
6. What is Cohesion ? What are the different type of Cohesion?
7. What is (SQA)? What are the component of Software Quality Assurance (SQA).

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड बी.सी.ए-20

Course Title : Internet Administration

Course Code : B.C.A.-20

अधिकतम अंक : 30  
Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18  
Maximum Marks: 18

1. What are Intranets? Explain the categories of the Intranets on the basis of their functionality and then on the basis of their application and architecture. 6
2. Explain the need of IP Addresses? Explain the various components of an IP Address. Also describe the four classes of IP Addresses with the help of a diagram. 6
3. Define and briefly describe the following:  
(a) SMTP (b) FTP  
(c) HTTP 6

## Section – B

खण्ड - ब

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 database connectivity? 2
5. What is TCP? 2
6. Describe databases as Intranet Management Tools. 2
7. What is an Apache Tomcat Server? 2
8. What is an Extranet? 2
9. What are the different protocols available in Wireless Application Protocol (WAP) stack? Explain the purpose of each protocol. 2

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड बी.सी.ए-1.18(N)

Course Title : System Software

Course Code: B.C.A.-06(O)/

B.C.A.-1.18(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

- (a) What is an operating system? List the major Components / modules of a general purpose operating system software.  
(b) How is a process different from a program? What information is contained within a process control block (PCB)?
- (a) Explain the page fault handling routine in a computer system employing virtual memory.  
(b) What are the necessary conditions for a deadlock to occur in a computer system.
3. Explain the difference between compiler and Interpreter. Write the names of two languages for each used the compiler and interpreter.

## Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

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

4. Explain the following Unix commands:  
(a) cp (b) chmod (c) sort (d) vi (e) ls (f) tee.
5. Explain the terms: Process Switch and context switch ? How are they related?
6. What is a Semaphore? Explain the wait and signal operations of a semaphore. Why are these operations atomic?
7. Explain the following Unix command using suitable examples.  
(a) pwd (b) man (c) less (d) whoami (e) who (f) grep.
8. Explain the page fault handling routine in a computer system employing virtual memory.
9. What are the criteria used for comparing various. CPU scheduling algorithms? Differentiate between Preemptive and Nonpreemptive scheduling policies.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2016-2017

कम्प्यूटर अनुप्रयोग में स्नातक

**Bachelor of Computer Applications (BCA)**

विषय : कम्प्यूटर

विषय कोड: बी.सी.ए

Subject : Computer

Subject Code : B.C.A

कोर्स शीर्षक :

कोर्स कोड बी.सी.ए-1.22(N)

Course Title : Introduction to Computer  
Organisation

Course Code: B.C.A.-09(O)/  
B.C.A.-1.22(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note: Answer should be given in 800 to 1000 words. All questions are compulsory.

## Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the various types of sequential logic circuits using their logic diagram and truth tables.
2. What are the basic functions of data transfer techniques? Differentiate the various data transfer techniques in brief.
3. What is addressing modes? Explain the various types of addressing modes.

## Section – B

खण्ड - ब

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 counters? Explain synchronous and asynchronous counters.
5. What are instructions? Explain the factors considered while deciding the instruction length. What are variable length instructions?
6. Explain the process of handling an Interrupt in 8086 microprocessor with the help of an example/diagram.
7. What do you understand by memory in computer system? Discuss the different type of memories with logic diagram. Explain their application in brief.
8. Describe the following:  
a) Role of Interrupts                      b) RISC and CISC
9. Write an assembly language program to add two numbers.