# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)                                   **2015-2016**

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

विषय          : कम्प्यूटर                विषय कोड    :  यू.जी.सी.एस.

**Subject     : UGCS**               **Subject Code :  UGCS**

कोर्स शीर्षक    :                        कोर्स कोड      :  यू.जी.सी.एस.

**Course Title  :  Computer Fundamental   Course Code  :  UGCS-01**

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. What do you mean by Counter? Design 4-bit ripple counter using RS-flip flop and explain its functioning.

2. Explain types of interrupts and list any five interrupt handlers provided by MS-DOS for input/output services.

3. What is virtual memory? Differentiate between Associative memory Vs interleaved memory.

## Section – B                                Maximum Marks:  12

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

4. Differentiate among different level of RAID?

5. Draw the diagram of a simple micro programmed control unit and explain its operation.

6. Convert the following decimal numbers to binary and octal numbers
   85.85
   105.15

7. Why is parity bit required? How is it used in correcting single bit errors?

8. Simplify the following expressing using Kanaugh's map in product of sum from F(A,B,C,D)= S(2,4,6,8,9,14,15)

9. Explain the logic of micro-operations and their implementation on at least two inputs.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)                                    2015-2016

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

| | | | |
|---|---|---|---|
| विषय | : कम्प्यूटर | विषय कोड | : यू.जी.सी.एस. |
| **Subject** | **: UGCS** | **Subject Code** | **: UGCS** |
| कोर्स शीर्षक | : | कोर्स कोड | : यू.जी.सी.एस. |
| **Course Title** | **: Introduction to System Software** | **Course Code** | **: UGCS-03** |

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. What do you mean by Compiler? Discuss the step to design a compiler.

2   What do you mean by system software? Explain in details types of software.

3   What are the functions of operating system? Discuss the layered structure of UNIX operating system.

## Section B

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

Maximum Marks: 12

4   What do you mean by two pass assembler?

5   List the functions of System table.

6   Explain the function of Loader.

7   What do you mean by process? Discuss the different state of a process.

8   What is system cost?

9   What do you mean by Multitasking operating system?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)         2015-2016

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

| विषय | : कम्प्यूटर | विषय कोड | : यू.जी.सी.एस. |
|---|---|---|---|
| **Subject** | : UGCS | **Subject Code** | : UGCS |
| कोर्स शीर्षक | : | कोर्स कोड | : यू.जी.सी.एस. |

**Course Title** : **C-Programming**      **Course Code** : **UGCS-04**

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. *What is Recursive Function? Explain with suitable Example.*

2. Discuss the Elementary operation and operator in C.

3. What do you mean by Pointer? Write the algorithm and programming in C to implement selection sorting.

## Section B

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

Maximum Marks: 12

4. What do you mean by global variable in C?

5. What are the differences between while ( ) and do while ( ) loop?

6. Write the C programme to find out the length of string without using the string function.

7. What are various data types in "C"? Explain with example.

8. What do you mean by union in C?

9. Write the step to run the C programme in UNIX.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

### अधिन्यास (Assignment)     2015-2016
### स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

| | | |
|---|---|---|
| विषय : कम्प्यूटर | विषय कोडः यू.जी.सी.एस. | |
| **Subject : UGCS** | **Subject Code : UGCS** | |
| कोर्स शीर्षक : | कोर्स कोड : यू.जी.सी.एस. | |

**Course Title : Introduction to DBMS**          **Course Code: UGCS-06**

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. Define super keys, candidate keys and primary keys. How are they related to strong and weak entity sets?

2. What are the different types of database security mechanism?

3. Draw the overall structure of DBMS and explains it various components.

## Section –B

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

Maximum Marks: 12

4. What are the responsibilities of a DBA.

5. Define Entity, Entity set and relationship.

6. Enlist and discuss advantages of SQL.

7. Define Normal forms and explain with suitable example First, second and third Normal forms.

8. What are the ACID properties of transactions? How are these useful?

9. Why is data replication useful in distributed DBMS?

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment) | **2015-2016**

स्नातक कम्प्यूटर कार्यक्रम
**Under Graduate Computer Programme**

विषय : कम्प्यूटर        विषय कोडः यू.जी.सी.एस.
**Subject : UGCS**       **Subject Code : UGCS**
कोर्स शीर्षक :        कोर्स कोड : यू.जी.सी.एस.
**Course Title :** Elements of System      **Course Code: UGCS-07**
Analysis & Design          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. Define a system. Discuss the role of computer in information systems. What are the characteristics and element of information system.
2. *What is DSS? Explain various components briefly with the help of a suitable diagram.*
3. Explain MIS. How are they related to computers?

## Section –B

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

Maximum Marks: 12

4. What is decision tree?

5. What is iteraction? Explain the difference between human iteraction and man machine iteraction?

6. What is system development life cycle?

7. What is Open and Close system?

8. What is maintenance? Discuss different types of maintenance.

9. Discuss top-down approach to system planning.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)    2015-2016

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

विषय          : कम्प्यूटर          विषय कोडः  यू.जी.सी.एस.

**Subject     : UGCS**          **Subject Code :  UGCS**

कोर्स शीर्षक    :                    कोर्स कोड :  यू.जी.सी.एस.

**Course Title** : Discrete Mathematics    **Course Code:  UGCS-08**

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. What do you mean by the rank and nullity of a group? Discuss the rank and nullity of a complete graph of n vertices.

2. *In a Boolean algebra [B, +, . , /]*

prove that :
   (a) $(a+b)' + (a+b')' = a'$
   (b) $(a+b) . (a'+c) = a'.b + a.c$

3. (a) prove that    $^nC_r = {}^{n-1}C_r + {}^{n-1}C_{r-1}$

(b) find the solution of the recurrence relation.
   $S_k - 5S_{k-1} + 6S_{k-2} = 0$

## Section –B

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

Maximum Marks:  12

4. Show that
   $[P \longrightarrow (q \longrightarrow r)] \longrightarrow [(p \longrightarrow q) \longrightarrow (p \longrightarrow r)]$ is a tautology.

5. Given the following statements as premises all referring to an arbitrary meal :
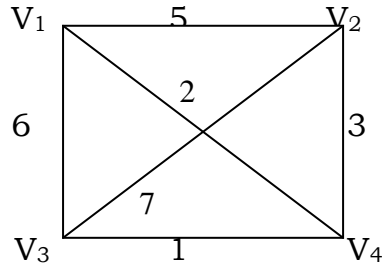   (a) If he takes coffee, he does not drink milk.
   (b) He eats crkers only if he drink milk.

(c) He does not take soup unless he eats crckers.

(d) At noon today, he had coffee.

Whether he took soup at noon today? If so, what is the correct conclusion?

6. Find three distinct Hamiltonian cycle in the following graph. Also find their weights.



7. Simplify Boolean function f given by:

F (A,B,C,D)    $= \sum (0,2,7,8,10,15)$ using Karnaugh map.

8. Solve the recurrence relation $Y_{n+1} - Y_n = n^2$

9. Eight coins are thrown simultaneously. Find the chance of obtaining at least six heads.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)   | **2015-2016**

स्नातक  कम्प्यूटर  कार्यक्रम
## Under Graduate Computer Programme

विषय : कम्प्यूटर       विषय कोडः यू.जी.सी.एस.

**Subject : UGCS**       **Subject Code : UGCS**

कोर्स शीर्षक :       कोर्स कोड : यू.जी.सी.एस.

**Course Title** : Computer Network     **Course Code: UGCS-09**

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. Compare TCP/IP and OSI model.
2. *(a) What are protocols? Why are the protocols needed?*
   (b)Categorize the four basic topologies in terms of line configuration.
3. Define:
(a) Frequency division multiplexing
(b) Time division multiplexing

## Section –B

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

Maximum Marks: 12

4. Name the ATM layers and their functions.

5. What do you mean by routing algorithm? Explain the concept of routing algorithm.

6. Compare and contrast the option in IPV4 and the extension headers in IPV6.

7. What is congestion? Why congestion occurs?

8. What is the purpose of the transport layer?

9. Write short note on:
(a) HTTP
(b) SMTP

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)   **2015-2016**

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

| विषय | : कम्प्यूटर | विषय कोडः यू.जी.सी.एस. |
|---|---|---|
| **Subject** | **: UGCS** | **Subject Code : UGCS** |
| कोर्स शीर्षक | : | कोर्स कोड : यू.जी.सी.एस. |
| **Course Title** | **: TCP/IP Programming** | **Course Code: UGCS-10** |

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 protocol stack of TCP/IP network model.*
2. *(a) Compare X.25 and ATM network.*
   *(b) Compare TCP & UDP.*
3. Define:
(c) Explain record route and time stamp option in IP
(d) How is fragmentation and reassembly don in IP?

## Section –B

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

Maximum Marks: 12

4. What is the difference between connectionless and connection oriented services? Which type of service is provided by IPV4?

5. Is the size of the ARP packet fixed? Explain.

6. What is the purpose of RIP?.

7. What is the maximum size of the TCP header?

8. Is the size of the ARP packet fixed explain?

9. Explain the reason for the elimination of the checksum in the IPV6 header.

# उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)　　　　　　　2015-2016

स्नातक कम्प्यूटर कार्यक्रम
## Under Graduate Computer Programme

विषय　　　　：　कम्प्यूटर　　　　　　विषय कोडः　यू.जी.सी.एस.
**Subject　　：UGCS**　　　　　　　　**Subject Code : UGCS**
कोर्स शीर्षक　：　　　　　　　　　　कोर्स कोड ：　यू.जी.सी.एस.
**Course Title : C ++ and Object**　　　　**Course Code: UGCS-11**
　　　　　　　**Oriented Programming**　　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. (a) What do you mean by object oriented techniques? Explain with some example.
   (b) Describe the pros and cons of unified modeling language (UML)

2. (a) Design link and association. Discuss the role of link and association in object modeling with suitable example.
   (b) What do you mean by polymorphism? Explain it with an example.

3. Explain difference between function template and class template.

## Section –B

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

Maximum Marks: 12

4. How do you copy one constructor to other?
5. Explain Inheritance how reusability is possible by inheritance.
6. How will you overload input and output operator?
7. Write a program to overload operator $^* =$ operator?
8. Differentiate between call by value and call by reference?
9. What is string? Explain array of string.