



मैट्स विश्वविद्यालय मुक्त एवं दूरवर्ती शिक्षा कार्यक्रम आरंग, रायपुर (छ0ग0)  
MATS UNIVERSITY OPEN & DISTANCE LEARNING CENTRE ARANG, RAIPUR (C.G.)

**सत्रीय कार्य / Assignment Work – 2014-15**  
**MCA (2<sup>nd</sup> year)**

**Max Marks – 30**

**Min Marks-12**

**निर्देश :-** सत्रीय कार्य के प्रत्येक विषय में कुल 30 अंक हैं। सभी प्रश्नों के अंक समान होंगे। सभी प्रश्न हल कीजिए। (Assignment Work of each paper carries 30 Marks. All questions carry equal marks. Attempt all questions.)

***Data communication and networking***

1. Explain the principle used in defining the OSI layers.
2. Write a short note on: (i) Star topology (ii) Bus topology (iii) Ring topology
3. Discuss data link layer design issues. Give example of connection oriented and connectionless protocol on data link layer.
4. What is ALOHA? Explain its types.
5. What is the role of user agent and message transfer agent?

***Discrete Structure and Graph Theory***

1. The Towers of Hanoi with n rings can be solved in  $2^n - 1$  moves.
2. Define Modular Arithmetic? Write Application of Modular Arithmetic.
3. Define Permutations & Combinations with examples?
4. A undirected graph  $G=(V,E)$  has on Euler Cycle If and only if G is connected and every  $U \in V$  as even degree. Similarly, a directed graph  $G=(V,E)$  has an Euler cycle if and only if G is strongly connected and every  $U \in V$  has equal in degree in -degree and out degree.
5. Define graph and its basic properties? List different types of graphs?

***Optimization Techniques***

1. What is the importance of optimization technique?
2. Write overview of Algorithms and explain these approaches
3. What is the difference between Fibonacci and golden section methods?
4. Define the Cauchy point and Related algorithms and also give algorithms.
5. Explain the linear conjugate gradient method and also define all Method.

***Object Oriented Programming using C++***

1. What is the difference between procedure-oriented programming and object-oriented programming?
2. Explain the process of compiling a program using Turbo C++ IDE.
3. What are library functions? What are the advantages and disadvantages of library functions?
4. Explain the following : (i) Default constructor (ii) Implicit constructor
5. What is pure virtual function? Explain advantage and disadvantage of pure virtual function.

***Java Programming***

1. Why Java is called a platform independent language? How is Java strongly associated with the Internet?
2. Explain Operators in Java.
3. What is a class? How does it accomplish data hiding?
4. Discuss the Java API Packages.
5. Explain various type of statements in brief.

***Computer Graphics and Multimedia***

1. What is multimedia? Explain meaning of multimedia?
2. What about different types of mice available in the maker. Explain the design of a common keyboard?
3. How do you modify the color and effects of images? What is Corel Draw? Write feature of CorelDraw.
4. What is computer graphics? Explain with advantage of computer graphics.
5. What is SMIL? What can SMIL do? How do create a SMIL file.

***Structured System Analysis and Design***

1. What is prototyping? Discuss its functions in detail.
2. What are the functions of decision table? Explain.
3. What factors are attached at time of construction of system?
4. Throw light on the career prospects of a system analyst.
5. What is the meaning of privacy? Which rules are necessary to control an organization based on database?

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