**MCA (Integrated)**
**(SEM VII) THEORY EXAMINATION 2022-23**
**MULTIMEDIA & ANIMATION**

*Time: 3 Hours*                                                          *Total Marks: 70*

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

1.      **Attempt *all* questions in brief.**                              **2 x 7 = 14**

    (a)      Explain the different image file formats.
    (b)      Give the differences between multimedia and hypermedia.
    (c)      Differentiate between animation and graphics.
    (d)      What are the advantages of using adobe flash?
    (e)      What is tweening?
    (f)      What is Animation?
    (g)      What do you mean by JPEG?

### SECTION B

2.      **Attempt any *three* of the following:**                          **7 x 3 = 21**
    (a)      What is the advantage of MIDI over digitized sound?
    (b)      Explain the major application of multimedia in our daily life.
    (c)      Which are the stages for making multimedia project? Explain them.
    (d)      List and explain the various methods of multimedia delivery.
    (e)      Discuss various steps involved in computer animation.

### SECTION C

3.      **Attempt any *one* part of the following:**                        **7 x 1 = 7**
    (a)      What are the components of Multimedia?
    (b)      Discuss about different multimedia skill are important multimedia projects?

4.      **Attempt any *one* part of the following:**                        **7 x 1 = 7**

    (a)      Write a short note on Storyboarding.
    (b)      What is Colour theory? Explain the color schemes.

5.      **Attempt any *one* part of the following:**                        **7 x 1 = 7**

    (a)      List all multimedia hardware needed to create multimedia project.
    (b)      Write the short notes Alpha & Beta Testing

6.      **Attempt any *one* part of the following:**                        **7 x 1 = 7**

    (a)      Differentiate between vector and raster graphics.
    (b)      Explain Multimedia Authoring and tools for multimedia authoring.

7.      **Attempt any *one* part of the following:**                        **7 x 1 = 7**

    (a)      What is aliasing? Write the techniques used to remove aliasing.
    (b)      What do you understand by the plug-in and player?

## MCA (INTEGRATED)
## (SEM VII) THEORY EXAMINATION 2022-23
## DOT NET FRAMEWORK & C#

*Time: 3 Hours*                                              *Total Marks: 70*

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

1.  **Attempt *all* questions in brief.**                    **2 x 7 = 14**
    (a)  Explain the features of dot net.
    (b)  What is meant by garbage collection?
    (c)  What is the use of namespaces?
    (d)  What is meant by constructor?
    (e)  What do you mean by delegates?
    (f)  Explain the working of CLR.
    (g)  What do you mean by polymorphism?

### SECTION B

2.  **Attempt any *three* of the following:**                **7 x 3 = 21**
    (a)  Write a C# program to illustrate single inheritance.
    (b)  What is an exception? Explain exception handling in C#.
    (c)  What do you understand about dot net assemblies? What is the difference between private and shared assemblies?
    (d)  Discuss the steps involved in creating web services in dot net. Write C# code to use the created web services from another application.
    (e)  What is the difference between an Interface and Abstract class? Explain with examples.

### SECTION C

3.  **Attempt any *one* part of the following:**             **7 x 1 = 7**
    (a)  Why delegates are used in C#? Show the implementation of multicast delegates with the help of an example.
    (b)  Write a short note on ADO.Net Providers? Explain details about the Accessing Databases using ADO.Net with an example?

4.  **Attempt any *one* part of the following:**             **7 x 1 = 7**
    (a)  Discuss the role of window service and normally where you found it in your computer. Write down the steps of creating and deploying a window service.
    (b)  Describe details about the data sets, data tables and controlling table views and dataviews?

5.  **Attempt any *one* part of the following:**             **7 x 1 = 7**
    (a)  Explain details about the Events with an example?
    (b)  Explain how to achieve shallow and deep copy in C# with an example.

6.  **Attempt any *one* part of the following:**             **7 x 1 = 7**
    (a)  How a distributed application is created in dot net framework?
    (b)  What is Thread? How can we create and start a thread in C#? Explain the main properties of the thread in C#.

7.  **Attempt any *one* part of the following:**             **7 x 1 = 7**
    (a)  Explain the process used to develop a MDI windows forms C# application. What are the different types of dialogs can be used with such an application?
    (b)  Write a short note on following:
         (i)   Graphical Device Interface (GDI) classes in C#.
         (ii)  Distributed applications in C#

## MCA (INTEGRATED)
## (SEM VII) THEORY EXAMINATION 2022-23
## COMPUTER BASED OPTIMIZATION TECHNIQUES

*Time: 3 Hours*                                        *Total Marks: 70*

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

1.      **Attempt *all* questions in brief.**                    2 x 7 = 14

(a)    What is Infeasible Problem in Linear Programming Problem?
(b)    What do you mean by Objective function?
(c)    What is the degeneracy in Linear Programming Problem?
(d)    Explain the terms 'Decision variables' and Basic variables'.
(e)    Define replacement problem.
(f)    Discuss basic characteristics of integer programming problem.
(g)    Explain the relationship between State, Stage and Policy in DPP.

### SECTION B

2.      **Attempt any *three* of the following:**                 7 x 3 = 21

(a)    Solve the following programming problem by Graphical method :

Min.    $Z = 20X_1 + 40X_2$
s.to.    $36X_1 + 6X_2 \geq 108$
         $3X_1 + 12X_2 \geq 36$
$20X_1 + 10X_2 \geq 100$
 where as  $X_1, X_2 \geq 0$

(b)    What do you mean by Duality and find the dual of the following problem :
Max.    $Z = 12X_1 + 15X_2 + 9X_3$
s.to.    $8X_1 + 16X_2 + 12X_3 \leq 25$
         $4X_1 + 8X_2 + 10X_3 \geq 80$
         $7X_1 + 9X_2 + 8X_3 = 105$
where as  $X_1, X_2, X_3 \geq 0$

(c)    Explain the Modified Distribution (MODI) method to solve any transportation problem.

(d)    Compute EOQ for the following items :
Annual consumption = 5000 units,      Unit price = Rs. 20
Order cost = Rs. 16,                  Storage rate = 2% per annum
Interest rate = 12% per annum,        Obsolescence rate = 6% per annum

(e)    What is the Dynamic recursive relation? State the 'Principle of Optimality' in Dynamic Programming and give a mathematical formulation of D.P.

### SECTION C

3.      **Attempt any *one* part of the following:**              7 x 1 = 7

(a)    Solve the following LPP by Simplex method
Max.    $Z = 3X_1 + 5X_2 + 4X_3$
s.to.    $2X_1 + 3X_2 \leq 8$
         $2X_2 + 5X_3 \leq 10$
 $3X_1 + 2X_2 + 4X_3 \leq 15$
where as  $X_1, X_2, X_3 \geq 0$

(b)    Explain Two Phase Method for solving Linear Programming Problem.

4. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Determine an initial basic feasible solution to the following Transportation problem by using Vogel's method :

**Destination**

| | | I | II | III | IV | V | VI | Supply |
|---|---|---|---|---|---|---|---|---|
| | A | 7 | 10 | 7 | 4 | 7 | 8 | 5 |
| **Origin** | B | 5 | 1 | 5 | 5 | 3 | 3 | 6 |
| | C | 4 | 3 | 7 | 9 | 1 | 9 | 2 |
| | C | 4 | 6 | 9 | 0 | 0 | 8 | 9 |
| Demand | | 4 | 4 | 6 | 2 | 4 | 2 | |

(b) What do you mean by Assignment problem? Write down the Hungarian algorithm for solving assignment problem.

5. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) A truck owner find from his past records that the maintenance cost of a truck(whose purchase price is Rs.3,00,000) during the first 8 years of its life and the resale price at the end of each year, is as follows:

| Year | Maintenance Cost (Rs.) | Resale Price (Rs.) |
|---|---|---|
| 1 | 36,000 | 2,00,000 |
| 2 | 48,000 | 1,50,000 |
| 3 | 60,000 | 1,00,000 |
| 4 | 72,000 | 80,000 |
| 5 | 84,000 | 70,000 |
| 6 | 96,000 | 60,000 |
| 7 | 1,08,000 | 50,000 |
| 8 | 1,20,000 | 40,000 |

When should the truck be replaced ?

(b) Discuss basic characteristics of Integer Programming. Explain the Cutting Plane method for solve Integer Programming Problems.

6. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Explain the Economic Order Quantity (EOQ) model. What are the assumptions?

(b) State Bellman's principle of optimality in Dynamic Programming. Also write dynamic programming algorithm to solve a multi-stage decision problem.

7. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) A soft drink distributor takes the contract for the sale of soft drinks at a cricket stadium. He has five sales boys to assign to three areas of the stadium. The table shows estimated sales that can be made with different assignments.

| No. of persons assigned | East stand | North stand | Club stand |
|---|---|---|---|
| 1 | 15 | 45 | 30 |
| 2 | 30 | 90 | 60 |
| 3 | 60 | 135 | 90 |
| 4 | 120 | 180 | 120 |
| 5 | 150 | 180 | 150 |

Use Dynamic Programming; determine how he should assign the boys in order to maximize his sales.

(b) Differentiate between DPP and LPP in detail.

## MCA INTEGRATED
## (SEM VII) THEORY EXAMINATION 2022-23
## SOFTWARE PROJECT MANAGEMENT

*Time: 3 Hours*                                                           *Total Marks: 70*

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

1.  **Attempt *all* questions in brief.**                                   **2 x 7 = 14**

    (a)  What are the various functions of management?
    (b)  Define the term SOW.
    (c)  Discuss Cost variance.
    (d)  Define binary reporting.
    (e)  What do you mean by risk management?
    (f)  Discuss SCM process.
    (g)  List out various possible software risks.

### SECTION B

2.  **Attempt any *three* of the following:**                              **7 x 3 = 21**

    (a)  What do you understand by the term project? Discuss various management functions involved in a project.
    (b)  Discuss project scheduling process.
    (c)  Write short note on earn value analysis.
    (d)  Explain testing life cycle with the help of a neat diagram.
    (e)  Discuss various maturity levels of CMM.

### SECTION C

3.  **Attempt any *one* part of the following:**                           **7 x 1 = 7**

    (a)  Consider the following project network diagram :
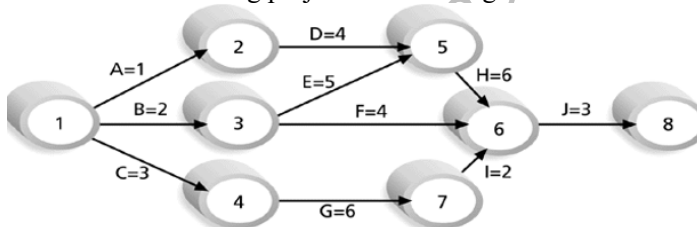


    Assume all times are in days.
      (i)    How many paths are on this network diagram?
     (ii)    How long is each path?
    (iii)    Which is the critical path?
     (iv)    What is the shortest amount of time needed to complete this project?
      (v)    Determine critical path for the project?
    (b)  Discuss activity network diagram with the help of suitable example.

**3.**     **Attempt any *one* part of the following:**         **7 x 1 = 7**

    (a)     Discuss various types of project plans.
    (b)     What are the various competencies every software project manager needs to know? Discuss them.

**5.**     **Attempt any *one* part of the following:**         **7 x 1 = 7**

    (a)     Discuss various guidelines that can help an author lead a successful walkthrough meeting.
    (b)     Discuss SPI and CPI.

**6.**     **Attempt any *one* part of the following:**         **7 x 1 = 7**

    (a)     Discuss attributes that should be verified during a code review.
    (b)     Discuss various software quality attributes.

**7.**     **Attempt any *one* part of the following:**         **7 x 1 = 7**

    (a)     Discuss clean room approach with neat diagram.
    (b)     Write short note on statistical quality assurance.

# MCA (INTEGRATED)
## (SEM VII) THEORY EXAMINATION 2022-23
## ENTERPRISE RESOURCE PLANNING

*Time: 3 Hours*                                    *Total Marks: 70*

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

1.    **Attempt *all* questions in brief.**                    **2 x 7 = 14**

   (a)    What do you understand by ERP system?
   (b)    What is DSS? How is it different from MIS?
   (c)    What do you mean by OLAP?
   (d)    What are the popular modules in ERP system?
   (e)    Why end user training is said to be critical for success of ERP implementation.
   (f)    What is "Gap Analysis" in ERP implementation lifecycle?
   (g)    List various ERP success inhibitors and success accelerators.

## SECTION B

2.    **Attempt any *three* of the following:**                    **7 x 3 = 21**

   (a)    What are the factors to be considered when selecting an ERP package?
   (b)    Explain the global and Indian market scenario of ERP system. Also explain the pitfalls of ERP system.
   (c)    Explain the role of consultants, vendors and users in ERP implementation.
   (d)    Describe the critical success and failure factors for ERP implementation?
   (e)    What is DSS? How does a DSS help in better decision making?

## SECTION C

3.    **Attempt any *one* part of the following:**                    **7 x 1 = 7**

   (a)    Write a short note on the following:
         (i)  Business Process Reengineering
         (ii) Supply Chain Management
   (b)    What are the reasons for the explosive growth of ERP market?

4.    **Attempt any *one* part of the following:**                    **7 x 1 = 7**

   (a)    List and briefly discuss the different phases of ERP implementation life cycle.
   (b)    Discuss tangible and intangible benefits of ERP implementation.

5.    **Attempt any *one* part of the following:**                    **7 x 1 = 7**

   (a)    Briefly discuss various approaches of ERP implementation.
   (b)    What are advantages and disadvantages of customized ERP?

6.    **Attempt any *one* part of the following:**                    **7 x 1 = 7**

   (a)    What are limitations of ERP? Suggest any model for improving ERP effectiveness.
   (b)    How ROI of ERP implementation is calculated? Justify your answer with an example.

7.    **Attempt any *one* part of the following:**                    **7 x 1 = 7**

   (a)    List various technologies used in extended ERP. Briefly discuss any two of these technologies.
   (b)    What is e-commerce? How e-commerce and ERP are related.