

**End Semester Examination, Dec. 2021**  
BCA - Third Semester  
**MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE**  
**(BCA-DS-303/BCA-401 (CB)/BCA-401A (CB))**

Time: 3 hrs

Max Marks: **100**

No. of pages: 3

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

**Q.1 Multiple choice questions:**

- a) If  $A = \{1, 2\}$  and  $B = \{0, 1\}$ , then  $A \times B$  is:
- $\{(1, 0), (1, 1), (2, 0), (2, 1)\}$
  - $\{(1, 0), (2, 1)\}$
  - $\{(1, 1), (1, 2), (0, 1), (0, 2)\}$
  - None of these
- b) A \_\_\_\_\_ is an ordered collection of objects.
- Relation
  - Function
  - Set
  - Proposition
- c) Given a function  $f$  as  $f(x) = 5x + 4$ ,  $x \in \mathbb{R}$ . If  $g : \mathbb{R} \rightarrow \mathbb{R}$  is inverse of function  $f$  then
- $g(x) = 4x + 5$
  - $g(x) = \frac{4x-5}{5}$
  - $g(x) = \frac{x-4}{5}$
  - $g(x) = 5x - 4$
- d) The set of all divisors of 24 are \_\_\_\_\_.
- $\{1, 2, 3, 4, 6, 8, 12, 24\}$
  - $\{2, 3, 4, 6, 8, 12\}$
  - $\{1, 3, 6, 12\}$
  - $\{2, 4, 6, 8\}$
- e) A graph is Eulerian if it contains \_\_\_\_\_.
- Euler tour
  - Euler trail
  - Hamiltonian path
  - Euler path
- f) Hamilton cycle is a cycle that contains every \_\_\_\_\_ of  $G$ .
- path
  - cycle
  - vertex
  - edge
- g) If in the truth table the answer column has the truth values both TRUE and FALSE then it is said to be \_\_\_\_\_.
- tautology
  - contradiction
  - contingency
  - equivalence relation
- h) Two vertices which are incident with the common edge are called \_\_\_\_\_ vertices.
- distinct
  - directed
  - adjacent
  - loops

- i) Hasse diagram are drawn for:
- Partially Ordered Sets
  - Lattices
  - Boolean Algebra
  - None of these
- j) A self-complemented, distributive lattice is called:
- Boolean Algebra
  - Modular Lattice
  - Complete Lattice
  - Self

**2x10**

**PART-A**

- Q.2 a) Let  $A = \{ 1,2,3 \}$  &  $B = \{ a,b,c \}$  &  $C = \{ x,y,z \}$  Where  
 $R = \{ (1,b), (2,a), (2,c) \}$   
 $S = \{ (a,y), (b,x), (c,y), (c,z) \}$
- Find the composition Relation  $R \circ S$
  - Find the matrices  $M_R, M_S$  &  $M_{R \circ S}$  & compare  $M_{R \circ S}$  to the product  $M_R \cdot M_S$ .  
 [CO2][L3] **10**
- b) In a group of 100 persons, 72 people can speak English and 43 can speak French. How many can speak English only? How many can speak French only and how many can speak both English and French.  
 [CO2][L3] **5**
- c) Let a relation  $R$  be defined by  $R = \{(2, 3); (4, 5); (3, 6); (5, 8); (5, 9)\}$  then find  $R^{-1} \circ R$ .  
 [CO2][L3] **5**
- Q.3 a) By using PMI prove that  $1+3+5+\dots+(2n-1) = n^2$  [CO2][L3] **10**  
 b) Find the GCD of 858 and 325 and express  $d = m \cdot 858 + n \cdot 325$ , here  $d$  is gcd of 858 and 325.  
 [CO3][L4] **10**
- Q.4 a) Consider the set  $D_{50} = \{1,2,5,10,25,50\}$  and the relation divides(/) be the partial ordering relation  $D_{50}$
- Draw the Hasse diagram of  $D_{50}$
  - Determine all the upper bound of 5,10
  - Determine all the lower bounds of 5,10
  - Determine g.l.b of 5,10
  - Determine l.u.b of 5,10
  - Determine the greatest and least element of  $D_{50}$
- [CO2][L2] **10**
- b) Determine the disjunctive normal form of the Boolean expression  $x \wedge (y \vee z)$   
 [CO3][L3] **10**

**PART-B**

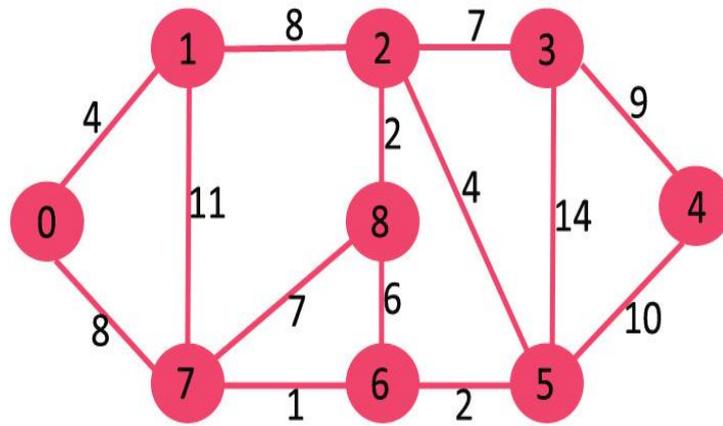
- Q.5 a) Define LHRWCCs. Write the characteristic equation and give example.  
 [CO1][L2] **10**
- b) Solve the given difference equation:  
 $a_r - 3 a_{r-1} + 2 a_{r-2} = 0$  [CO4][L3] **10**
- Q.6 a) Prove that the lines  $3x+y-14 = 0$ ,  $x - 2y = 0$  &  $3x - 8y + 4 = 0$  are concurrent.  
 [CO5][L3] **10**
- b) The line  $2x - 3y - 4 = 0$  is the perpendicular bisector of the line AB and the Co-ordinates of A are  $(-3,1)$ . Find the co-ordinates of B.  
 [CO5][L3] **10**

- Q.7 a) Explain the following:
- Eulerian graph.
  - Planner graphs
  - K- Regular graph
  - Complete Binary graph
  - Siblings in graph theory

- b) What is spanning tree? Explain steps of Kruskal's algorithm. Find the minimum spanning tree of the following graph.

[CO2][L2] **10**

[CO2][L4] **10**





**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**MOBILE APPLICATION DEVELOPMENT (SOFT708)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

Q.1 **Choose the correct option:**

- a) What is Android? [CO-1] [L-2]  
i) Android is a stack of software's for mobility  
ii) Google mobile device name  
iii) Virtual Machine  
iv) None of the mentioned
- b) How to stop services in android? [CO-1] [L-1]  
i) finish( )  
ii) system.exit( )  
iii) By manually  
iv) stopSelf() and stopService()
- c) Android is licensed under which open source licensing license? [CO-2] [L-1]  
i) Gnu's GPL  
ii) Apache / MIT  
iii) OSS  
iv) Sourceforge
- d) Which one is not a nickname of a version of Android? [CO-3] [L-1]  
i) Cupcake  
ii) Gingerbread  
iii) Honeycomb  
iv) Muffin
- e) Which of the following method is used to handle what happens after clicking a button? [CO-4] [L-1]  
i) onClick( )  
ii) onCreate( )  
iii) onSelect ( )  
iv) None of the mentioned
- f) Which of the following is the topmost layer of the android architecture?[CO-3] [L-1]  
i) System Libraries and Android Runtime  
ii) Linux Kernel  
iii) Applications  
iv) Applications Framework
- g) What is contained in manifest.xml? [CO-3] [L-1]  
i) Source Code  
ii) List of strings used in the app  
iii) Permission that the application requires  
iv) None of the mentioned
- h) What is the use of content provider in android? [CO-5] [L-1]  
i) To send the data from an application to another application.  
ii) To store the data in a database

**End Semester Examination, Dec. 2021**  
BCA - Third Semester  
**WEB APPLICATIONS DEVELOPMENT**  
**(BCA-DS-304/BCA304A (CB)/BCA-304(CB))**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

Q.1 Multiple choice questions:

- a) A website can and should be designed to be \_\_\_\_\_ friendly as a fundamental concern.
- i) User friendly
  - ii) Search Engine
  - iii) Hardware friendly
  - iv) None of these
- b) What is the name of the web browser that comes on all Apple devices?
- i) Internet Explorer
  - ii) Safari
  - iii) Chrome
  - iv) Firefox
- c) A typical \_\_\_\_\_ program creates some remote objects, makes references to these objects accessible, and waits for clients to invoke methods on these objects.
- i) Server
  - ii) Client
  - iii) Thread
  - iv) Concurrent
- d) Which HTML tag is used to define an internal style sheet?
- i) <script>
  - ii) <css>
  - iii) <style>
  - iv) None of these
- e) How can you open a link in a new browser window?
- i) <a href="url" target="new">
  - ii) <a href="url" target="blank">
  - iii) <a href="url".new>
  - iv) <a href="url" target="open">
- f) <Input> is:
- i) format tag
  - ii) empty tag
  - iii) both (i) and (ii)
  - iv) None of these
- g) The latest HTML standard is:
- i) XML
  - ii) SGML
  - iii) HTML 4.0
  - iv) HTML 5.0
- h) What is the correct HTML for making a drop-down list?
- i) <input type="list" />
  - ii) <select>
  - iii) <list>
  - iv) <input type="dropdown">
- i) How can you make an e-mail link?
- i) <mail href +xxx@y.com>
  - ii) <a href="mailto:xxx@y.com">
  - iii) <a href =xxx@y.com>
  - iv) Both (i) and (ii)
- j) Attributes are used to add extra info to a tag, like a unique identifier.
- i) True
  - ii) False

**2x10**

**End Semester Examination, Dec. 2021**  
BCA - Third Semester  
**LEADERSHIP AND ORGANIZATIONAL BEHAVIOR**  
**(BCA-DS-308/BCA-002A (CB)/BCA-002 (CB))**

Time: 3 hrs

Max Marks: **100**

No. of pages: **1**

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

Q.1 Answer in brief:

- a) Leadership attributes.
- b) Role of a leader.
- c) Transformational theory.
- d) Self leadership.
- e) Democratic leader.
- f) Effects of conflict.
- g) Difference between manager and leader.
- h) Stress management.
- i) Distributive warning.
- j) Organizational behavior.

**2x10**

**PART-A**

- Q.2 a) Explain different type of leadership styles in detail. [CO1] [L1] **10**  
b) What are the different factors that influence leadership behaviour? [CO2] [L1] **10**
- Q.3 a) What are the basic traits that a leader should have? [CO2] [L2] **10**  
b) Explain any three theories of leadership in detail. [CO3] [L2] **10**
- Q.4 a) Write short notes on:  
i) Leadership purpose. [CO2] [L4] **5x2**  
ii) Crucibles of leadership. [CO2] [L3] **10**  
b) What is cohesiveness? How it can be increased among group? [CO2] [L3] **10**

**PART-B**

- Q.5 a) Explain the frame work of organizational behaviour. [CO4] [L2] **10**  
b) Explain the concept and objectives of organizational behavior. [CO5] [L2] **10**
- Q.6 a) With the example explain one positive and one negative aspect of organizational behavior. [CO5] [L2] **10**  
b) What is perception management? How it impacts the growth of organization? Discuss in detail. [CO5] [L5] **10**
- Q.7 a) Explain the different factors involve in job satisfaction. [CO6] [L2] **10**  
b) How negative thinking can affect the organizational culture? Discuss in detail. [CO6] [L3] **10**

**End Semester Examination, Dec. 2021**  
BCA-Fifth Semester  
**RDBMS USING ORACLE (BCA-DS-502/BCA-503(CB)/BCA-503A(CB))**

Time: 3 hrs

Max Marks: **100**

No. of pages: 1

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

Q.1 **Answer the following questions:**

- a) Define Entity and Attributes.
- b) What is the importance of recovery procedure?
- c) What do you mean by concurrent transaction?
- d) Explain % row type and % type operators.
- e) What do you mean by error handling?
- f) What do you mean by triggers?
- g) What is meant by check points?
- h) What are the causes of failures?
- i) Describe Group by clause.
- j) Define all datatypes of SQL.

**2x10**

**PART-A**

- Q.2 a) What do you mean by data independence? Differentiate between logical & physical data independence? How 3-schema architecture of DBMS achieves data independence? [CO1][L1]**10**  
b) Construct an E-R diagram of university system and reduce it into tables.[CO2][L2]**10**
- Q.3 a) Explain full functional dependency and transitive functional dependency with example. [CO3][L4]**10**  
b) Consider the universal relation  $R = \{A, B, C, D, E, F, G, H, I, J\}$  and the set of functional dependencies  $F = \{AB \rightarrow C, A \rightarrow DE, B \rightarrow F, F \rightarrow G, H, D \rightarrow I, J\}$ . Decompose R into 2NF relations. [CO3][L4]**10**
- Q.4 a) What is anomaly? What are types of anomalies? Explain in detail. [CO4][L1]**10**  
b) What is third normal form? Explain with an example. [CO4][L2]**10**

**PART-B**

- Q.5 Define various decision making statements with the help of suitable examples used in PL/SQL. [CO5][L4]**20**
- Q.6 What do you mean by cursors? Differentiate Implicit and explicit cursor by giving appropriate examples. [CO5][L3]**20**
- Q.7 a) Discuss the problems of concurrent execution. Explain two-phase locking protocol. [CO6][L2]**10**  
b) What do you mean by Database recovery? Explain various recovery methods. [CO6][L2]**10**

**End Semester Examination, Dec. 2021**  
BCA - Fifth Semester  
**PAYTHON PROGRAMMING (BCA-DS-503(CB)/506(CB))**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 3

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks. [CO]

**Q.1 Multiple choice questions:**

- a) What do we use to define a block of code in Python language?
  - i) Key
  - ii) Brackets
  - iii) Indentation
  - iv) None of these
- b) Which character is used in Python to make a single line comment?
  - i) /
  - ii) //
  - iii) #
  - iv) !
- c) Which of the following statements is correct regarding the object-oriented programming concept in Python?
  - i) Classes are real-world entities while objects are not real
  - ii) Objects are real-world entities while classes are not real
  - iii) Both objects and classes are real-world entities
  - iv) All of the above
- d) Which of the following is not a keyword in Python language?
  - i) val
  - ii) raise
  - iii) try
  - iv) with
- e) Which of the following statements would create a tuple in python?
  - i) mytuple = ("apple", "banana", "cherry")
  - ii) mytuple[123] = ("apple", "banana", "cherry")
  - iii) mytuple = ("2" \* ("apple", "banana", "cherry"))
  - iv) None of these
- f) Study the following statement:  

```
>>> "a"+"bc"
```

What will be the output of this statement?
  - i) a+bc
  - ii) abc
  - iii) a bc
  - iv) a
- g) What happens when '2' == 2 is executed?
  - i) False
  - ii) True
  - iii) ValueError occurs
  - iv) TypeError occurs
- h) Which of the following arithmetic operators cannot be used with strings in python?
  - i) +
  - ii) \*
  - iii) -

**End Semester Examination, Dec. 2021**  
BCA - Fifth Semester  
**INTRODUCTION TO CLOUD COMPUTING (BCA-DS-505)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks.

Q.1 **Choose the correct option:**

- a) Communication between services is done widely using \_\_\_\_\_ protocol.  
i) REST  
ii) SOAP  
iii) RESTFUL  
iv) None of these. [CO2][L-1]
- b) Applications such as a Web server or database server that can run on a virtual machine image are referred to as \_\_\_\_\_.  
i) Virtual server  
ii) Virtual appliances  
iii) Machine imaging  
iv) All of the mentioned [CO3][L-2]
- c) Cloud computing is a \_\_\_\_\_ system and it is necessarily unidirectional in nature.  
i) Stateless  
ii) Stateful  
iii) Reliable  
iv) All of the mentioned [CO1][L-2]
- d) \_\_\_\_\_ enables batch processing, which greatly speeds up high-processing applications.  
i) Scalability  
ii) Reliability  
iii) Elasticity  
iv) Utility [CO3][L-2]
- e) \_\_\_\_\_ as a Service is a cloud computing infrastructure that creates a development environment upon which applications may be build.  
i) Infrastructure  
ii) Service  
iii) Platform  
iv) All of the mentioned [CO4][L-2]
- f) \_\_\_\_\_ is a paradigm of distributed computing to provide the customers on-demand, utility based computing service.  
i) Remote Sensing  
ii) Remote Invocation  
iii) Cloud Computing  
iv) Private Computing [CO3][L-2]
- g) These cloud services are of the form of utility computing i.e. the \_\_\_\_\_ uses these services pay-as-you-go model.  
i) Cloud providers  
ii) Clients  
iii) End users

**End Semester Examination, Dec. 2021**  
OPEN ELECTIVE - COMMON FOR ALL BRANCHES  
**SOCIAL MEDIA NORMS AND ETIQUETTE (BCA-OE-001)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

**Q.1 Multiple choice questions:**

- a) Which of the following is an example of service provided by Twitter?  
i) Blogging  
ii) Programming  
iii) Gaming  
iv) Micro blogging [CO1][L1]
- b) Which of the following is the most viral section of the internet?  
i) Chat Messenger  
ii) Social Networking Sites  
iii) Tutorial Sites  
iv) Chat-rooms [CO1][L1]
- c) Which social network is considered the most popular for business-to-business marketing?  
i) Facebbok  
ii) Orkut  
iii) Ryze  
iv) Linkedin [CO2][L1]
- d) Which of the following is based on user-generated media, mainly investigating earned media?  
i) Website Analytics  
ii) Social Media Monitoring  
iii) Log file analysis  
iv) Web Counters [CO2][L1]
- e) Which social media platform has received approval from the National Payments Corporation of India (NPCI), to enter UPI market?  
i) Telegram  
ii) WhatsApp  
iii) WeChat  
iv) Facebook Messenger [CO4][L2]
- f) Which of these is not a privacy feature in WhatsApp?  
i) Checkup  
ii) LastSeen  
iii) Live Location  
iv) About [CO3][L2]
- g) Which of the following country proposed the "social media bill 2021"?  
i) USA  
ii) Australia  
iii) China  
iv) India [CO4][L1]
- h) Which famous personality has announced to launch a new social media network, called TRUTH social?  
i) Donald Trump  
ii) Narendra Modi  
iii) Hillary Clinton  
iv) Kim Jong-un [CO4][L2]
- i) Which ministry is associated with the new social media rules notified in 2021?  
i) Ministry of Home Affairs.  
ii) Ministry of Electronics and Information Technology.  
iii) Ministry of External Affairs.  
iv) Ministry of Science and Technology. [CO3][L2]
- j) Which of these rules is a good idea to follow when engaging with other people on social media?  
i) The Golden Rule  
ii) The Privacy Rule  
iii) The priority Rule  
iv) The Devlin Rule [CO2][L2]
- Fill in the blanks:**
- k) Micro-blogging is \_\_\_\_\_ . [CO1][L1]
- l) \_\_\_\_\_ is the name of IT Law that is mentioned in the Indian Legislature. [CO5][L13/3]

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**INFORMATION TECHNOLOGY PROJECT MANAGEMENT (COMP701A)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

Q.1 **Choose the correct option:**

- a) Which is the first stage in the project management model?
  - i) Project control
  - ii) Project planning
  - iii) Project definition
  - iv) Understanding the project environment
- b) "A Gantt chart is used to show a project timeline diagrammatically".
  - i) True
  - ii) False
- c) "The critical path is an activity (or series of activities) that if delayed will delay the whole project."
  - i) True
  - ii) False
- d) "Projects are usually in high-volume, low-variety operations".
  - i) True
  - ii) False
- e) A critical path network diagram does not:
  - i) Identify the particularly important activities.
  - ii) Calculate earned value.
  - iii) Help determine the amount of float.
  - iv) Calculate the duration of the whole project.
- f) Successful project management does not include which of the following factors?
  - i) Interchangeable staff
  - ii) Control mechanisms
  - iii) Responsiveness to clients
  - iv) Competent team members
- g) Despite of how carefully a project is planned, it is almost certain to be changed before:
  - i) Execution
  - ii) Planning
  - iii) Completion
  - iv) Assigning resources
- h) Cause of change that cannot be managed by project manager is:
  - i) Technological uncertainty.
  - ii) Innovation.
  - iii) Change in environment.
  - iv) Increased client knowledge.
- i) "Project managers have to assess the risks that may affect a project".
  - i) True
  - ii) False

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**NETWORK SYSTEM SECURITY (CONE709A)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks.

Q.1 Choose the correct option:

- a) Which of the following is a type of independent malicious program that never required any host program?
  - i) Trojan Horse
  - ii) Worm
  - iii) Trap Door
  - iv) Virus
- b) Why are the factors like Confidentiality, Integrity, Availability, and Authenticity considered as the fundamentals?
  - i) They help in understanding the hacking process
  - ii) These are the main elements for any security breach
  - iii) They help to understand the security and its components in a better manner
  - iv) All of the above
- c) The modern cipher is usually a complex \_\_\_\_\_ cipher made of a combination of different simple ciphers.
  - i) Square
  - ii) Secret
  - iii) Round
  - iv) Plain
- d) One way to preserve the integrity of the document is through the use of
  - i) Eye-Rays
  - ii) Finger Prints
  - iii) Biometrics
  - iv) X-Rays
- e) Firewalls are used for \_\_\_\_\_
  - i) Routing
  - ii) Security
  - iii) Tunneling
  - iv) Congestion Control
- f) Which of the following ciphers is a block cipher?
  - i) Caesar cipher
  - ii) Vernam cipher
  - iii) Playfair cipher
  - iv) None of the above
- g) Data Encryption Techniques are particularly used for \_\_\_\_\_.
  - i) Protecting data in data communication system
  - ii) Reduce storage space requirement
  - iii) Enhances data integrity
  - iv) Decreases data integrity

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**ADVANCE COMPUTER NETWORKING (CONE710)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks.

- Q.1 Choose the correct option:
- a) Protocol is sets of rules to govern \_\_\_\_\_. [CO-1] [L-2]
    - i) Communication
    - ii) Standard
    - iii) Metropolitan Communication
    - iv) Bandwidth
  - b) Which layer is commonly used to retrieve email from a mail server? [CO-1] [L-1]
    - i) FTP
    - ii) IMAP
    - iii) HTML
    - iv) TELNET
  - c) A packet in Transmission Control Protocol (TCP) is called \_\_\_\_\_. [CO-2] [L-1]
    - i) Transmittable slots
    - ii) Packet
    - iii) Segment
    - iv) Source slots
  - d) A collection of hyperlinked documents on the internet form the \_\_\_\_\_. [CO-3] [L-1]
    - i) World Wide Web
    - ii) E-mail System
    - iii) Mailing List
    - iv) Hypertext Markup Language
  - e) Which one of the following would breach the integrity of a system? [CO-4] [L-1]
    - i) Looking the room to prevent theft
    - ii) Full access rights for all users
    - iii) Fitting the system with an anti-theft device
    - iv) Protecting the device against willful or accidental damage
  - f) Which of the following is the most common internet protocol? [CO-4] [L-1]
    - i) HTML
    - ii) NetBEUI
    - iii) TCP / IP
    - iv) IPX / SPX
  - g) The length of an IPv6 address is \_\_\_\_\_. [CO-4] [L-1]
    - i) 32 bits
    - ii) 64 bits
    - iii) 128 bits
    - iv) 256 bits
  - h) Which of the following servers allow LAN users to share data? [CO-4] [L-2]
    - i) Data server
    - ii) Point server
    - iii) File server

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Third Semester  
**ENTERPRISE RESOURCE PLANNING SYSTEMS (INFO620)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

Q.1 **Choose the correct option:**

- a) Identify the correct statement.
  - i) The only problem with the package vendors is that they are very expensive.
  - ii) The only problem with the business consultants is that they are very expensive.
  - iii) The only problem with the employee training is that it is very expensive.
  - iv) The only problem with the planning of implementation is that it is very expensive.
- b) What must a system do to qualify as a true ERP solution?
  - i) Be flexible
  - ii) Be modular and closed
  - iii) Extend within the company
  - iv) All of the above
- c) Which of the following occurs when everyone involved in sourcing, producing, and delivering the company's product works with the same information?
  - i) Eliminates redundancies
  - ii) Cuts down wasted time
  - iii) Removes misinformation
  - iv) All of the above
- d) When a customer needs to check the performance of the company before he places an order, which department has to be in a position to provide the necessary information?
  - i) Production
  - ii) Quality
  - iii) Marketing
  - iv) Finance
- e) Data mining is the process of identifying valid, new, potentially useful, and ultimately clear \_\_\_\_\_ from databases.
  - i) Decision
  - ii) Strategies
  - iii) Information
  - iv) Account
- f) \_\_\_\_\_ module supports the entire sales and purchase processes from start to finish.
  - i) Order management
  - ii) Sales management
  - iii) Purchase management
  - iv) Master data management
- g) ERP system is built on a \_\_\_\_\_ utilizing a common computing platform.
  - i) Centralized database
  - ii) Individual databases

**End Semester Examination, Dec. 2021**  
MCA-Third/Fifth Semester  
**ADVANCE DATABASE SYSTEMS (MCA-DS-502)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

**Q.1 Multiple choice questions:**

- a) A person's name, birthday, and social security number are all examples of
  - i) Entities
  - ii) Attributes
  - iii) Relationships
  - iv) Descriptions
- b) A relationship is an association between
  - i) Objects
  - ii) Entities
  - iii) Databases
  - iv) Fields
- c) Desirable properties of relational database design include
  - i) Minimizing insertion/deletion anomalies
  - ii) Minimizing redundancy
  - iii) Minimizing update anomalies
  - iv) All of the above
- d) The functional dependency  $A \rightarrow B$  for relation schema  $R(A, B, C, D)$  implies that
  - i) No two tuples in  $R$  can have the same value for attribute  $B$
  - ii) No two tuples in  $R$  can have the same value for attribute  $A$
  - iii) Any two tuples in  $R$  that have the same value for  $B$  must have the same value for  $A$
  - iv) Any two tuples in  $R$  that have the same value for  $A$  must have the same value for  $B$
- e) Mandatory access control (also called security scheme) is based on the concept of
  - i) Access rights
  - ii) System-wide policies
  - iii) Both (a) and (b)
  - iv) None of these.
- f) Which of the following is the process by which a user's identity is checked?
  - i) Authorization
  - ii) Authentication
  - iii) Access control
  - iv) None of these
- g) Aggregate functions in SQL are
  - i) GREATEST, LEAST and ABS
  - ii) SUM, COUNT and AVERAGE
  - iii) UPPER, LOWER and LENGTH
  - iv) SQRT, POWER and MOD
- h) The end of an SQL command is denoted by
  - i) An end of line character
  - ii) An 'enter-key' marker
  - iii) Entering F4 key
  - iv) A semicolon (;)

# End Semester Examination, Dec. 2021

MCA-Third/Fifth Semester

## PROGRAMMING IN .NET (MCA-DS-503)

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

### Q.1 **Multiple choice questions:**

- a) Which of the following protocol is used to transfer files from local-host to remote host? [CO-4] [L-2]  
i) HTTP  
ii) FTP  
iii) TOP  
iv) UDP
- b) Which of the following server control shows data in a tabular format and allows sorting, paging, edit and delete each record? [CO-5] [L-2]  
i) List box  
ii) Grid view  
iii) Repeaters  
iv) None of the above
- c) The file extension of an ASP.NET web form is: [CO-4] [L-2]  
i) .docx  
ii) .aspx  
iii) .jpeg  
iv) .java
- d) What does the keyword virtual mean in the method definition? [CO-2] [L-2]  
i) The method is public  
ii) The method can be derived  
iii) The method must be over-ridden  
iv) The method can be over-ridden
- e) We can declare a property in an interface. [CO-3] [L-1]  
i) True  
ii) False
- f) Which is not an ADO.NET DataAdapter object? [CO-4] [L-2]  
i) OleDbDataAdapter  
ii) SqlDataAdapter  
iii) QueryDataAdapter  
iv) Both i) and ii).
- g) The first step of configuring a DataAdapter is to select: [CO-4] [L-2]  
i) An adapter object.  
ii) A connection object.  
iii) A database object.  
iv) A dataset object.  
v) None of the above
- h) Where do cookies store information? [CO-5] [L-2]  
i) HTML source  
ii) Text file  
iii) URL  
iv) Both i) and ii)
- i) Common Language Specification (CLS):` [CO-1] [L-1]

**End Semester Examination, Dec. 2021**  
MCA – Third / Fifth Semester  
**SOFTWARE ENGINEERING AND TESTING (MCA-DS-504)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

**Q.1 Multiple choice questions:**

- a) Which Model is most popular for student's small projects?
  - i) Waterfall Model
  - ii) Spiral Model
  - iii) Quick and Fix Model
  - iv) Prototyping Model
- b) During software development, which factor is most crucial?
  - i) People
  - ii) Product
  - iii) Process
  - iv) Project
- c) What are the characteristics of software?
  - i) Software is developed or engineered; it is not manufactured in the classical sense.
  - ii) Software doesn't "wear out"
  - iii) Software can be custom built or custom build.
  - iv) All mentioned above.
- d) RAD Software process model stands for\_\_\_\_\_.
  - i) Rapid Application Development.
  - ii) Relative Application Development.
  - iii) Rapid Application Design.
  - iv) Recent Application Development.
- e) Which of the following is not defined in a good Software Requirement Specification (SRS) document?
  - i) Functional Requirement.
  - ii) Nonfunctional Requirement.
  - iii) Goals of implementation.
  - iv) Algorithm for software implementation. **2x5**

**Write short note on the following:**

- f) Software Crisis
- g) Feasibility Analysis
- h) SDLC
- i) Software Metrics
- j) Load Testing **2x5**

**PART-A**

- Q.2 a) Explain the various principles of software Engineering. [CO1] [L2] **5**
- b) What is waterfall model, Explain and also discuss the advantages of waterfall model over build and fix model. [CO1] [L2] **10**
- c) What is the purpose of Software Requirement Specification? [CO1] [L2] **5**
  
- Q.3 a) Explain the management factors involve in software development. [CO3] [L4] **5**

**End Semester Examination, Dec. 2021**  
MCA – Third / Fifth Semester  
**DATABASE ADMINISTRATION (MCA-DS-508)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

Q.1 Multiple choice questions:

- a) A shared lock allows which of the following types of transactions to occur?
  - i) Delete
  - ii) Insert
  - iii) Read
  - iv) Update
- b) A traditional data administration performs which of the following roles?
  - i) Tune database performance
  - ii) Establish backup and recovery procedures
  - iii) Resolve data ownership issues
  - iv) Protect the security of the database
- c) A benefit of the three-tier architecture is which of the following?
  - i) New modules can be built to support specific business needs
  - ii) Performance improves for compiled SQL statements
  - iii) Results in a thinner client and database server
  - iv) All of the mentioned
- d) Stored procedures have which of the following advantages?
  - i) It takes a longer time to write them as compared to writing Visual Basic
  - ii) Network traffic increases
  - iii) Data integrity improves as multiple applications access the same stored procedure
  - iv) Result in thicker client and thinner database server
- e) The DBMS acts as an interface between what two components of an enterprise-class database system?
  - i) Database application and the database
  - ii) Data and the database
  - iii) The user and the database application
  - iv) Database application and SQL
- f) The following are components of a database except \_\_\_\_\_.
  - i) User data
  - ii) Meta data
  - iii) Reports
  - iv) Indexes
- g) An on-line commercial site such as amazon.com is an example of an \_\_\_\_\_.
  - i) Single-user database application
  - ii) Multiuser database application
  - iii) E-commerce database application
  - iv) Data mining database application
- h) Locking may cause which of the following problems?
  - i) Erroneous updates
  - ii) Deadlock
  - iii) Versioning
  - iv) All of the mentioned

**End Semester Examination, Dec. 2021**  
MCA - Third Semester  
**E-COMMERCE TECHNOLOGIES (MCA-DS-509)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: **1**

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

- Q.1 Write short notes on:
- a) Digital signature.
  - b) E -cycle of Internet marketing.
  - c) Cryptography.
  - d) Authorization and authentication. [CO-1, 2] [L-2] **5x4**

**PART-A**

- Q.2 a) What are the key technologies for B2B E-commerce? Explain architectural models of B2B E-commerce. [CO-1] [L-2] **10**  
b) Discuss in detail about Internet Service provider's role in E-commerce. Also elaborate how search engines are helpful. [CO-1] [L-2] **10**
- Q.3 Discuss the security requirements of internet and e-commerce applications and how these requirements are fulfilled by various hardware and software systems. [CO-2] [L-3] **20**
- Q.4 a) Once a company has acquired customer, the key to maximizing revenue is keeping them. Explain how e-commerce is helpful in customer retention. [CO-3] [L-4] **10**  
b) What is a web server? What data is held in web server in the context of E-commerce? [CO-3] [L-4] **10**

**PART-B**

- Q.5 a) Explain the role of first virtual payment system in E-commerce history and discuss the current one. [CO-4] [L-3] **10**  
b) What are the different ways for E-Payment systems? [CO-4] [L-3] **10**
- Q.6 a) What is an EDI? Explain how business transaction can take place in an EDI. [CO-4] [L-2] **10**  
b) Differentiate between Intranet and Extranet with relevance to E-commerce technology [CO-4] [L-5] **10**
- Q.7 a) Discuss the different online marketing strategies in E-commerce. [CO-5] [L-6] **10**  
b) Write about ethical, social and political issues in implementing E-Commerce. [CO-5] [L-6] **10**

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**HUMAN COMPUTER INTERACTION (SOFT 704)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against question.

Q.1 **State whether the following statements are TRUE or FALSE:**

- a) The design of MS-Office i.e. Word, Excel, PowerPoint is very efficient and easy to use.
- b) The voice interaction of SIRI and CORTANA is very painful for use.
- c) The chaotic design is represented in a well organized way.
- d) Knowledge of human psychology plays a vital role in a better design.
- e) PetriNet is a graphical tool for problem solving.

**Define the following:**

- f) F-design.
- g) Multimedia.
- h) Gesture based inputs.
- i) Virtual reality.
- j) Siri.

[CO-1][L-1] **2x10**

**PART-A**

Q.2 a) "The design field is not confined to one particular science. It is actually an amalgamation of multiple sciences." Justify the above statement by giving supporting arguments. [CO-4][L-5] **10**

b) Why MS-Office interface is considered as one of the most efficient designs? Justify your statement by giving five points to support the above said points. [CO-2][L-4] **10**

Q.3 a) Demonstrate the user interface design process with an example. [CO-4][L-4] **10**  
b) How to perform the usability evaluation of an interface based on exploratory, predictive, formative and summative criteria? [CO-4][L-2] **10**

Q.4 a) Which particular seven types of interaction are possible with the help of pointing devices? [CO-3][L-2] **10**  
b) Describe the various challenges of speech and auditory interfaces. [CO-4][L-2] **10**

**PART-B**

Q.5 a) Create a flow chart for calculation of the salary of employees. [CO-2][L-6] **10**  
b) Compare the working of State Transition Network and Flowchart. [CO-3][L-4] **10**

Q.6 a) What is virtual reality? How it has changed the interface of today? [CO-2][L-2] **10**  
b) What are the major trends of HCI? [CO-5][L-1] **10**

Q.7 a) Describe the usefulness of ubiquitous computing. [CO-3][L-2] **10**  
b) How hypertext, multimedia and World Wide Web helps to enhance the user interface. [CO-2][L-2] **10**

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Third Semester  
**OBJECT ORIENTED PROGRAMMING (SOFT605)**

Time: 3 hrs.

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks.

Q.1 Choose the correct option:

- a) Which of the following option leads to the portability and security of Java?
  - i) Byte code is executed by JVM
  - ii) The applet makes the Java code secure and portable
  - iii) Use of exception handling
  - iv) Dynamic binding between objects
- b) Which component is used to compile, debug and execute the Java programs?
  - i) JRE
  - ii) JIT
  - iii) JDK
  - iv) JVM
- c) Which package contains the Random class?
  - i) java.util package
  - ii) java.lang package
  - iii) java.awt package
  - iv) java.io package
- d) Which of the following is an immediate subclass of the Panel class?
  - i) Applet class
  - ii) Window class
  - iii) Frame class
  - iv) Dialog class
- e) Which option is false about the final keyword?
  - i) A final method cannot be overridden in its subclasses.
  - ii) A final class cannot be extended.
  - iii) A final class cannot extend other classes.
  - iv) A final method can be inherited.
- f) Which keyword is used for accessing the features of a package?
  - i) package
  - ii) import
  - iii) extends
  - iv) export
- g) What is the initial quantity of the ArrayList list?
  - i) 5
  - ii) 10
  - iii) 0
  - iv) 100
- h) Which data type among the following is an implementation of Objects or OOPs?
  - i) byte
  - ii) int
  - iii) char

**End Semester Examination, Dec. 2021**  
B. Sc. (Information Technology) - Fifth Semester  
**WEB APPLICATIONS DEVELOPMENT (SOFT703)**

Time: 3 hrs

Max Marks: **100**

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part A** and **TWO** questions from **Part B**. Each question carries equal marks.

Q.1 **Choose the correct option:**

- a) Which characteristics best define .NET core?  
i) Flexible deployment  
ii) Cross-platform  
iii) Command-line Tools  
iv) All of the above [CO1][L1]
- b) The term for the pages that depend upon a master page is called?  
i) Master page  
ii) Content pages  
iii) Web page  
iv) All of the above [CO2][L1]
- c) Machine that places the request to access the data, is generally called as:  
i) Server machine  
ii) Client machine  
iii) Request machine  
iv) Intelligent machine [CO5][L1]
- d) ASP.NET was developed by:  
i) IBM  
ii) Google  
iii) Microsoft  
iv) None of these. [CO1][L1]
- e) Which of the following control is used to validate that two fields are equal?  
i) Regular Expression Validator  
ii) Compare Validator  
iii) equals() method  
iv) Required Field Validator [CO3][L1]
- f) Which attribute of <body> tag in HTML is used to insert an image in the background of the web page?  
i) bgcolor  
ii) img  
iii) background  
iv) All of these [CO2][L1]
- g) Which of the following is faster and consume lesser memory?  
i) SQL Data Reader  
ii) Data Set  
iii) None of these  
iv) Both (a) and (b) [CO4][L1]
- h) What is the correct HTML for making a drop-down list?  
i) <input type="list" />  
ii) <select>