PAPER ID-410046

Subject Code: RCAI901

Roll No: | | | | | | | | | | | | | |

MCA (INTEGRATED)
(SEM IX) THEORY EXAMINATION 2021-22
COMPUTER GRAPHICS

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.	What is the condition of a frame buffer to be called bitmap?
b.	How the quality of a raster image is determined?
c.	Define circle?
d.	What is the difference between geometric and coordinate transformation?
e.	Find 2X2 matrix for scaling.
f.	Define back face detection.
g.	What do you mean by illumination model?

SECTION B

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

a.	Discuss various types of shadow mask methods.
b.	What do you mean by line clipping? Discuss midpoint subdivision line clipping.
c.	Discuss Roll, Yaw and Pitch.
d.	Discuss the role of frame buffer and depth buffer in depth buffer method.
e.	What are the various shading models for polygons? Discuss them.

SECTION C

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

(a)	Discuss various Hard copy devices for computer graphics.
(b)	Generate various steps involved in Bresenham's line drawing process.

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

(a)	What do you mean by general fixed points scaling? Find out matrix for it.
(b)	Discuss various type of 2D mirror reflection transformation about an axis.

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

(a)	Draw and discuss the flowcharts that describe logic of Sutherland Hodgeman algorithm.
(b)	Discuss various types of perspective projections.

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

(a)	Write short notes on shadows and transparency.
(b)	What are various types of Interpolative shading models? Discuss them.

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

(a)	Discuss cubic Bezier curve.
(b)	Write short note on Bezier surfaces.

Subject Code: RCAI902

PAPER ID-410197

Roll No: | | | | | | | | | | | | | |

MCA (INTEGRATED)
(SEM IX) THEORY EXAMINATION 2021-22
SOFTWARE ENGINEERING

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.	Mention the Non-Functional requirements on software to be developed.
b.	What is meant by Feasibility Study?
c.	What is meant by Software Engineering paradigm?
d.	What are the testing principals needed for performing the Software Testing?
e.	Differentiate between Coupling and Cohesion.
f.	Why modularity is important in Data Dictionary?
g.	Explain briefly about Reengineering activities.

SECTION B

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

a.	Explain about evaluation of Software Engineering Methodologies.
b.	Why SRS document also known as the Black-box specification of a system?
c.	Justify "Design is not coding and coding is not design".
d.	What is the necessity of Unit testing? Write down all unit test considerations.
e.	Describe the Software Maintenance. And discuss the Maintenance Process.

SECTION C

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

(a)	Distinguish between RAD model and incremental model.
(b)	Describe the Primary difference between Structured analysis and Object oriented analysis.

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

(a)	What is Requirement Engineering? What are the characteristics of SRS?
(b)	What do you understand with the term "Requirement Elicitation"? Discuss any two techniques.

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

(a)	What is the need for Modularity? What are the five criteria that are used in Modularity?
(b)	Discuss the concepts of the Cohesion and Coupling of software design and also explain the different types of coupling and cohesion.

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

(a)	Discuss in detail about Alpha and Beta testing.
(b)	Describe the errors are commonly found during Unit Testing?

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

(a)	What do you understand by Software Risk Analysis and How Risk Analysis is important in software engineering.
(b)	Define Reverse Engineering. Describe the various steps of Reverse Engineering process in detail.

Subject Code: RCAI021

PAPER ID-410453

Roll No: | | | | | | | | | | | | | |

MCA
(SEM IX) THEORY EXAMINATION 2021-22
CRYPTOGRAPHY & NETWORK SECURITY

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.	Differentiate cryptography and cryptanalysis.
b.	Differentiate between public key and private key.
c.	What do you mean by confidentiality or secrecy?
d.	What is the basic difference in identity authentication and message authentication?
e.	What is the role substitution box in DES?
f.	Differentiate confusion and diffusion terms.
g.	What is DSS in cryptography?

SECTION B

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

a.	What is the difference between a monoalphabetic cipher and a polyalphabetic cipher?
b.	Consider the diffie-Hellman scheme with a common-prime q=11 and primitive root α = 2. (i) Show that 2 is indeed a generator (ii) If the user A has public key Y_A=9 what is A's private key? (iii)If the user B has public key Y_B=3what is the secrete key k in between A and B.
c.	What entities constitute a full-service Kerberos environment?
d.	What is impersonation attack? Can it be applied on Needham-Schroeder OR Denning AS Protocol? If yes then explain how?
e.	List the characteristics of a good firewall implementation? How is a circuit gateway different from an application gateway?

SECTION C

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

(a)	What do you understand by Feistel Cipher structure? Explain with the help of diagram.
(b)	Using key **[4 3 1 2 5 6 7]**, Covert the following plain text into cipher text. Plaintext: A t t a c k p o s t p o n e d u n t i l t w o A M x y z

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

(a)	Write RSA algorithm if N = 187 and the encryption key e = 17, find out the corresponding private key.
(b)	Discuss mutual authentication and one-way authentication protocols. How do they deal with replay attacks.

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

(a)	What is the difference between direct and arbitrated digital signature?
(b)	What is the purpose of the X.509 standard? Explain.

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

(a)	Describe the role of Ticket granting server (TGS) in Kerberos authentication protocol.
(b)	How the messages are generated and transmitted in pretty good privacy (PGP) protocol? Explain with clear diagrams.

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

(a)	How does PGP use the concept of trust? Explain.
(b)	Give examples of applications of IPSec.

Subject Code: RCAI031

PAPER ID-410701

Roll No: | | | | | | | | | | | | | |

MCA (INTEGRATED)
(SEM IX) THEORY EXAMINATION 2021-22
CLOUD COMPUTING

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.	Discuss the role of virtualization in cloud computing.
b.	What is the business model of cloud computing?
c.	State any two service provider of SaaS.
d.	Discuss Google app engine.
e.	What are the benefits of cloud computing?
f.	What is Hunt Calendar?
g.	What are the security considerations in cloud?

SECTION B

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

a.	Explain briefly the security concerns of cloud computing.
b.	What are the various aspects for the need of virtualization in cloud computing.
c.	How to create groups on social networks? Explain with example.
d.	What are the security advantages and disadvantages in cloud computing?
e.	Explain the services provided by Amazon infrastructure cloud from user perspective

SECTION C

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

(a)	Explain the security architecture design framework.
(b)	Write the short notes on the following - (i) IaaS (ii) SaaS (iii) PaaS (iv) DaaS (v) MaaS

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

(a)	Discuss about Amazon AWS with cloud software environments.
(b)	Explain briefly about various cloud services and their major providers.

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

(a)	Explain the risk from multi-tenancy with respect to various cloud environment.
(b)	Compare Public, Private and Hybrid clouds.

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

(a)	Describe Security as a Service in cloud. What are the security issues in cloud?
(b)	Write the short notes on any three i. CRM Management ii. Project Management iii. Task Management iv. Event Management

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

(a)	What do you understand by Open source software? Explain various advantages of using open-source software.
(b)	Why the CRM is important in cloud computing?

PAPER ID-410890

Subject Code: RCAI041

Roll No: | | | | | | | | | | | | | |

MCA (INT.)
(SEM-IX) THEORY EXAMINATION 2021-22
DISTRIBUTED DATABASE SYSTEMS

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.	List various states of Transactions.
b.	What are advantages of concurrent execution?
c.	What are the drawbacks of k-mean algorithm?
d.	What do you understand by distributed transaction?
e.	List various replication techniques.
f.	What is Log?
g.	Define Data Warehouse as per Inmon.

SECTION B

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

a.	List and discuss various ACID properties of transaction.
b.	What do you understand by time stamp-based protocol? Discuss.
c.	What do you understand by Distributed database system? Explain in detail.
d.	Define Checkpoint. What are the disadvantages of checkpoint?
e.	Describe query optimization in distributed database.

SECTION C

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

(a)	Discuss the dirty read problem that can arise if concurrency control is badly designed.
(b)	What is Serializability. Explain with an example.

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

(a)	What is Lock? Explain different types of Locks.
(b)	Explain two-phase Locking protocol with its advantages.

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

(a)	Explain homogeneous as heterogeneous distributed database.
(b)	Discuss following Fragmentation technique of Distributed database: (i) Horizontal Fragmentation (ii) Vertical Fragmentation.

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

(a)	Explain Log based recovery. Also discuss the working of Immediate data recovery modification technique of Log based recovery.
(b)	What are the different Failures which may occur in distributed database system?

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

(a)	What do you understand by Lazy replication technique? Discuss in detail.
(b)	What is query processing? Explain the steps involved in Query processing.