



Total No. of Pages : 02

1.
 - a) Briefly discuss protocols associated with layers of TCP/IP protocol suite.
 - b) Discuss the benefits of using ATM technology.
2.
 - a) What is packet switching? Explain X.25 equipments.
 - b) Write a short note on SNMP (Standard Network Management Protocol).
3. Explain various topologies and transmission media for backbone N/W.
4. Compare IPV4 and IPV6 with their header formats. Giving the details of class based addressing scheme of IPV4 and IPV6.
5. Explain CSMA-CA/CD. In CSMA/CA and CSMA/CD, why the Communication mode for these two access methods are classified as Broadcast based?
6. What is dynamic routing? Create WAN (wide area network) using three routers and assign appropriate IP addresses to each router port. Also show the router configuration command for setting up of any one dynamic routing protocol.
7. Explain the WWW in detail :
 - a) Hypertext & Hypermedia
 - b) Browser Architecture
 - c) Categories of Web Documents
 - d) HTML
 - e) CGI Java.
8. Explain evolution, examples of wireless communication systems, 2G Cellular networks, evolution for 2.5G GPRS Standards, IS-95B for 2.5G CDMA.

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Any student found making any change/addition/modification in contents of scanned copy of answer sheet and original answer sheet, shall be covered under UMC provisions.

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Max. Marks : 60

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SECTION-E

Write briefly :

- 9) JIT Compilers.
- 10) Define RISC.
- 11) Language processor.
- 12) Bootstrap Loader.
- 13) Relocation.
- 14) Overlays.
- 15) Define NDFA.
- 16) Platform Independent.
- 17) Define YACC.
- 18) Define USB.



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Roll No.

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MCA (E-I) (2015 to 2018) (Sem.-3)

EMBEDDED SYSTEM

Subject Code : MCA-305C

M.Code : 74079

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Discuss the overall design process of embedded system.
2. a) Briefly discuss the various challenges associated with the design of embedded systems.
b) Give overview of development and testing tools.

SECTION-B

3. Discuss the PIN diagram of 8-bit 40 Pin PIC micro-controller 16F877A.
4. a) What is a timer? How does a counter performs Timer function and time-capture functions?
b) Briefly discuss various addressing modes.

SECTION-C

5.
 - a) Discuss the instruction set used in PIC16F877A.
 - b) Discuss different types of interrupts.
6. Write short notes on the following :
 - a) Memory-Mapped I/O
 - b) Assembler directives



SECTION-D

7. Explain the use of embedded systems in networking and telecom applications.
8. Write short notes on the use of embedded systems in following :
 - a) Digital signal processing applications
 - b) Multimedia applications.

SECTION-E

Write briefly :

9. What is the difference between requirements and specifications?
10. Name any two embedded system development environments.
11. What is the difference between microcontroller and microprocessor?
12. What is the difference between timer and counter?
13. What is the use of time comparator?
14. What do you mean by A/D convertor?
15. Name the components of embedded system hardware.
16. What do you mean by release time and response time of real time tasks?
17. Why embedded system is called as real-time system?
18. What do you mean by serial port?



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MCA (2015 to 2018) (Sem.-3)
DATABASE ADMINISTRATION

Subject Code : MCA-301

M.Code : 74073

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

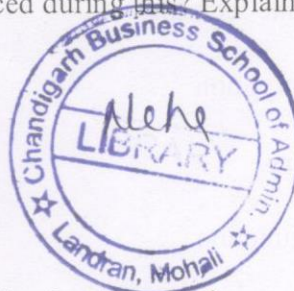
1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- 1)
 - a) Describe client-server model.
 - b) Discuss the activities of database environment management.
- 2) What is database package? Compare various database packages with market.

SECTION-B

- 3) What is database replication? What are the problems faced during this? Explain in detail.
- 4) a) Write notes on :
- a. Data Compression
 - b. Business Policy Implementation
- b) Write a note on Data Compression and Business Policy Implementation
- 



SECTION-C

- 5) What is RAID technology? How it is implemented? Explain its levels in detail.
- 6) Explain all steps how to create, modify and delete user roles. Also discuss roles of user.

SECTION-D

- 7) What is an Index? How it helps in improving database performance? Explain with example.
- 8) What is performance tuning in databases? Discuss its methodology.

SECTION-E

Write briefly :

- 9) Log Switch
- 10) RAID
- 11) Instance Vs. Schema
- 12) Stored Procedures
- 13) Tablespace
- 14) Partial Backup
- 15
 - a) Auditing
 - b) On-line redo log
- 16) Data Encryption
- 17) Sub Query
- 18) Nested Function



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SECTION-D

- Q7 Design a Turing Machine which recognizes palindromes over $\{0,1\}$.
- Q8 Explain the following :
- a) Multitape Turing Machine
 - b) Chomsky Hierarchy

SECTION-E

Write briefly :

- Q9 State pumping lemma for regular languages.
- Q10 Discuss the concept given by Arden's theorem.
- Q11 What is meant by regular expression?
- Q12 Define a Derivation Tree for a CFG.
- Q13 What are two normal forms for a CFG?
- Q14 Define Acceptance of PDA by Empty Stack.
- Q15 What is halting problem of Turing Machine?
- Q16 Compare PDA and TM.
- Q17 Write two properties of recursively enumerable languages.
- Q18 Define NP complete problem.



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MCA (2015 to 2018) (Sem.-3)

INFORMATION SECURITY

Subject Code : MCA-302

M.Code : 74074

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- 1) Discuss some computer security threats and how they can be prevented?
- 2) What is message authentication in cryptography? How hash functions are used in message authentication?

SECTION-B

- 3) Discuss advantages and disadvantages of token based authentication system?
- 4) Explain the need for database security? What are database access controls in dbms?

SECTION-C

- 5) What are the type of malicious software? How they harm the network system?
- 6) What are software related security issues? Write the steps to handle security issues?

SECTION-D

- 7) Explain the common criteria for Information technology security evaluation?
- 8) What is security risk assessment and how it works?

SECTION-E

- 9) Discuss the importance of digital signatures?
- 10) Write in short about Iris Biometric system?
- 11) Define relational databases?
- 12) What is social engineering attack?
- 13) Give example of flooding attack?
- 14) What is safe programming coding?
- 15) Discuss Keylogger system?
- 16) Write a short note on windows security?
- 17) What are trusted systems?
- 18) What are worms in Information Security?



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MCA (2015 to 2018) (Sem.-3)

JAVA PROGRAMMING

Subject Code : MCA-304

M.Code : 74076

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- 1) What is meaning of access control of variables and functions in java? Explain the different access control mechanisms in java with the help of a suitable program.
- 2) Why is the need of JVM in execution of any java program? Discuss the structure of any Java program.

SECTION-B

- 3) What are packages? How packages are created and accessed in java and also briefly discuss the naming conventions used in packages?
- 4) What are different types of exceptions in java? Explain the exception handling mechanism in particular to handling multiple exceptions with the help of a suitable program.

SECTION-C

- 5) Define applet. How applet is different from application? Write a java program to create an applet which will have a line, an Oval & a Rectangle using different graphics class functions.
- 6) What is JDBC? Write a pseudo code program in java for connecting front end application with the backend database.



SECTION-D

- 7) What are java sockets? Discuss the different methods of creating connection and connectionless sockets in java with the help of suitable program.
- 8) What are servlets? Discuss Servlet life cycle along with compilation and deployment of servlet with the help of a simple program.

SECTION-E

- 9) What are advantages of Java programming over C++?
- 10) What is byte code?
- 11) Give one example of type casting in java.
- 12) Define Runnable Interface.
- 13) What are characteristics of static members in java?
- 14) Define Generic Servlet.
- 15) Why do we use JSP?
- 16) Which function is used for rotation transformation in JAVA?
- 17) Define Event Handling.
- 18) Which tag in HTML is used to pass the parameters in applet?



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MCA (2015 to 2018) (Sem.-3)
SOFTWARE ENGINEERING & PROJECT MANAGEMENT
Subject Code : MCA-303
M.Code : 74075

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- 1) What is software engineering? Discuss the evolution of software engineering?
- 2) Discuss the importance of Software quality? How software quality can be measured?

SECTION-B

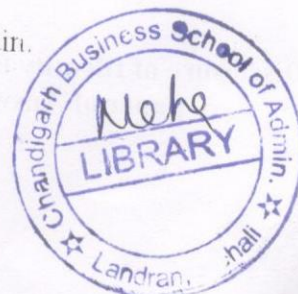
- 3) Explain the following :
 - a) Use of CASE Tools
 - b) Change control process
- 4) What is SRS? What are the characteristics of good SRS Document? Explain

SECTION-C

- 5) What are the different type of Metrics? Explain their role in software project planning?
- 6) Discuss the role of Abstraction refinement and Modularity in software. Also discuss the heuristics for effective Modularity?

SECTION-D

- 7) What is the use of PERT chart in project scheduling? Explain.
- 8) Compare and contrast the following :
 - a) Verification and validation
 - b) White box and black box testing



SECTION-E

- 9) What are the merits and demerits of PERT Chart?
- 10) What is the need of data design?
- 11) What is the role of feasibility study in software engineering?
- 12) Write a note on web engineering?
- 13) What is functional cohesion?
- 14) What is methodology?
- 15) What is the significance of spiral model?
- 16) List various features of software project planning?
- 17) Write any two features of object oriented design ?
- 18) What are the limitations of waterfall Model?



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