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**BCACAC 384**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, July/August 2023  
(2021-22 Batch Onwards)  
E1 : PROGRAMMING FOR ANALYTICS**

Max. Marks : 80

Time : 3 Hours

**Note :** Answer any ten questions from Part – A and any one full question from each Unit in Part – B.

**PART – A**

1. a) How to get help on any function of R ? Give an example. (10×2=20)
- b) What is the purpose of typeof() function in R ? Give an example.
- c) Name the functions used to add additional rows and columns in a Matrix.
- d) What is Primary Key and Candidate Key ?
- e) Write any two differences between flat file and relational database.
- f) Write any four types of database users.
- g) Expand SQL, CRUD.
- h) What is the use of COMMIT and ROLLBACK statements in SQL ?
- i) Name any two Scalar functions.
- j) What is SAS ?
- k) Mention two types of SAS variables.
- l) Mention two methods to import external data into SAS.

**PART – B**

**Unit – I**

2. a) Write a note on reserved words in R programming.
- b) What is Data Frame in R ? How do you create and access items in it ?  
Explain with an example.
- c) Briefly explain sort() function and order() function. (4+5+6)

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Reg. No.

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**BCACAC 383**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, July/August 2023  
(2021 – 22 Batch Onwards)  
SOFTWARE TESTING**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer **any ten** questions from Part – A and **any one full** question from **each** Unit in Part – B.

**PART – A**

1. a) What is Software Testing ? (10×2=20)  
b) Differentiate White Box and Black Box Testing.  
c) What do you mean by Acceptance Testing ?  
d) What is Module Testing ?  
e) List the various Testing Stages.  
f) What is Beta Testing ?  
g) What is Stress Testing ?  
h) What is Execution Testing ?  
i) Differentiate Static and Dynamic Testing Tools.  
j) Define Test Policy.  
k) Define Metrics.  
l) What is Benchmarking ?

**PART – B**

**Unit – I**

2. a) What are the salient features of Good Testing ?  
b) Describe the advantages and disadvantages of White Box Testing.  
c) Describe various misconceptions about testing. (5+5+5)

P.T.O.



3. a) Explain the challenges faced by testers.  
b) Describe the advantages and disadvantages of Self-Review.  
c) Explain the different levels of Validation. (5+5+5)

### Unit – II

4. a) Explain various characteristics of Requirement Testing.  
b) Describe Code Review and Unit Testing process.  
c) Describe Alpha testing. What are its advantages and disadvantages ? (5+5+5)
5. a) Describe Design Verification and Validation process.  
b) Describe customer responsibilities during acceptance testing.  
c) Describe Bottom-Up approach for integration. (5+5+5)

### Unit – III

6. a) Explain Regression Testing.  
b) Briefly explain Error Handling Testing.  
c) Mention the difficulties faced while introducing New Tools. (5+5+5)
7. a) Explain Recovery Testing.  
b) Mention the advantages and disadvantages of using Testing Tools.  
c) Explain Partial Automation. (5+5+5)

### Unit – IV

8. a) Explain advantages of Test Planning.  
b) Explain Test Standards.  
c) Briefly explain the characteristics of Good Test Case. (5+5+5)
9. a) Explain Test Plan Benefits.  
b) Explain different aspects involved in the generation of Test Data.  
c) Explain different Test Reports. (5+5+5)
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**BCACAC 381**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, July/August 2023  
(2021-22 Batch Onwards)  
E-COMMERCE**

Time : 3 Hours

Max. Marks : 80

**Note : Answer any ten questions from PART – A and any one full question from each Unit in PART – B.**

**PART – A**

**(10×2=20)**

1. a) Define electronic commerce.
- b) Give any two applications of e-commerce.
- c) Define a business model.
- d) Give any two benefits of EDI.
- e) What is encryption ? Name any two encryption techniques.
- f) What is HTML? Why is it used in e-commerce ?
- g) Give any two benefits of a star topology.
- h) Name any four cabling systems used in IEEE 802.3 LAN.
- i) What is DNS ? Why is it used?
- j) Define mobile commerce.
- k) What is PGP ?
- l) What is cryptography ?

**PART – B**

**UNIT – I**

**(4×15=60)**

2. a) Explain the B2B e-commerce with an example.
- b) Explain the benefits of e-commerce.
- c) What are the services provided by web hosting and internet services model ?

**(5+5+5)**

**P.T.O.**



- 3. a) Explain the B2C e-commerce with an example.
- b) What is a Subscription Model ? How does it work ?
- c) Write the applications of e-commerce technologies. **(5+5+5)**

UNIT – II

- 4. a) Explain the framework of e-commerce with a neat diagram.
- b) What is EDI ? Explain the different benefits of EDI. **(8+7)**
- 5. a) Explain the working of E-Cash payment system with a neat diagram.
- b) Explain the layered architecture of an EDI system with a neat diagram. **(8+7)**

UNIT – III

- 6. a) With a neat diagram explain the different steps in a typical interaction of an HTTP session.
- b) Explain the working of FTP protocol with a neat diagram. **(8+7)**
- 7. a) Explain the TCP/IP reference model with a neat diagram.
- b) Explain the architecture of an e-mail system with a neat diagram. **(8+7)**

UNIT – IV

- 8. a) Explain the major impediments faced by the mobile commerce environment.
  - b) Explain the conventional encryption model with a neat diagram.
  - c) What is a firewall and how does it protect a site ? Name the different types of firewalls. **(5+5+5)**
  - 9. a) What are the different types of network transaction security issues ?
  - b) Explain the public key cryptosystem with a neat diagram.
  - c) Explain 3G networks. **(5+5+5)**
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**BCACAC 382**

**Choice Based Credit System VI Semester B.C.A. Degree  
Examination, July/August 2023  
(2021 – 22 Batch Onwards)  
NETWORK SECURITY AND MANAGEMENT**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer any ten questions from Part – A and any one full question from each Unit in Part – B.

**PART – A**

1. a) Differentiate fabricate and intercept. (10×2=20)  
b) What is the difference between encryption and decryption ?  
c) What are the qualities of good network ?  
d) Expand PPTP, L2FP, L2TP, IPSec.  
e) Define spyware and computer virus.  
f) What are the safeguards to malicious software ?  
g) What is the difference between HTTP and S-HTTP ?  
h) How to manage fault in network ?  
i) Define the terms object, agent and manager.  
j) What is risk management ?  
k) What are the legal threats to network ?  
l) List the factors that affects the incident classification.

**PART – B**

**Unit – I**

2. a) Describe the goals of infrastructure security.  
b) Explain the different classes of information policy.  
c) Write a note on design guidelines.

**(5+5+5)**

P.T.O.



- 3. a) Explain different categories of data encryption methods.
- b) Define cryptanalysis. What are its purposes ?
- c) Write note on stream and block ciphers. (5+5+5)

**Unit – II**

- 4. a) How smart cards help to security ? How companies using it ?
- b) What is VPN ? Explain types of VPNs.
- c) List and explain Database security requirements. (5+5+5)
- 5. a) List and explain various system vulnerabilities.
- b) Discuss attack on internet protocol and internet services.
- c) Describe the types of firewall. (5+5+5)

**Unit – III**

- 6. a) Explain the client server architecture for web.
- b) Explain the basic goals of network management.
- c) Write a note on SNMP commands. (5+5+5)
- 7. a) What is security plan ? Explain the issues.
- b) Write a note on SNMPv2.
- c) Explain disaster recovery. (5+5+5)

**Unit – IV**

- 8. a) Explain incident response process.
  - b) Explain Information Technology Act, 2000.
  - c) Describe various Email threats an organization faces. (5+5+5)
  - 9. a) Write a note on Indian penal code.
  - b) Describe the schematic flow of internet banking.
  - c) Write a note on Consumer Protection Act, 1986. (5+5+5)
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**BCACAC 382**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, September 2022  
(2021-2022 Batch Onwards)  
NETWORK SECURITY AND MANAGEMENT**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer **any ten** questions from Part – A and **one full** question from **each** Unit in Part – B.

PART – A

(10×2=20)

1. a) What is the difference between Plain text and Cipher text ?
- b) What are management principles ?
- c) What are the components of infrastructure security ?
- d) What is smart card ?
- e) What is Data Warehouse ?
- f) List some network vulnerabilities.
- g) What is the difference between HTTP and S-HTTP ?
- h) What is the importance of web security ?
- i) What is performance management ?
- j) What is risk management ?
- k) What are the two modes of internet banking ?
- l) What is cybercrime ?

P.T.O.



**PART – B**

**Unit – I**

- 2. a) Explain the various security attacks.
- b) Write a note on network security principles.
- c) Explain security policies, standards and guidelines. (5+5+5)
- 3. a) Explain different categories of data encryption methods.
- b) Describe the goals of infrastructure security.
- c) Write a note on physical securities. (5+5+5)

**Unit – II**

- 4. a) Explain the various biometric identification methods.
- b) Explain user VPNs.
- c) Write a note database security issues. (5+5+5)
- 5. a) Write a note on malicious software.
- b) Explain the different ways of authenticating user's identity.
- c) Describe the different types of firewall. (5+5+5)

**Unit – III**

- 6. a) Explain the need of Security analysis.
- b) Explain the basic goals of network management.
- c) Explain the client server architecture for web. (5+5+5)
- 7. a) Explain the importance of SSL/TLS for secure web services.
- b) Describe SNMP commands.
- c) How to manage change control across organization ? Explain. (5+5+5)

**Unit – IV**

- 8. a) How to identify the risk to an organization ? How to deal it ?
  - b) Explain incident management.
  - c) Explain incident response process. (5+5+5)
  - 9. a) Explain the need of E-Mail Policy.
  - b) Describe any five E-mail threats an organization faces.
  - c) Write a note on Indian Penal Code. (5+5+5)
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**BCACAC 384**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, September 2022  
(2021-2022 Batch Onwards)**

**E1 : PROGRAMMING FOR ANALYTICS**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer *any ten* questions from Part – A and *one full* question from *each* Unit in Part – B.

**PART – A**

**(10×2=20)**

1. a) What is the purpose of typeof() function in R ? Give an example.
- b) Name the functions used to add additional row and column in a matrix ?
- c) What is the use of str() function in a data frame ?
- d) Define database and DBMS.
- e) Name any 4 types of database users.
- f) What is first normal form ?
- g) Name the four basic SQL operations.
- h) Expand DDL and DML.
- i) What is the use of COMMIT and ROLLBACK statements in SQL ?
- j) Mention two types of SAS variables.
- k) What is the purpose of WHERE statement in SAS ? Write its syntax.
- l) Mention any four comparison operators used in SAS.

**PART – B**

**Unit – I**

2. a) Explain applications of R Programming in the Real World.
- b) What is a matrix ? How do you add, remove rows and columns in a matrix ? Explain with an example.
- c) List and explain various Scales of Measurement in descriptive statistics. **(5+5+5)**

P.T.O.



3. a) Explain any two R objects.  
b) Briefly explain types of data in descriptive statistics.  
c) Explain stem and leaf plot with an example. (4+6+5)

#### Unit – II

4. a) Explain the characteristics of Database Management Software.  
b) Differentiate flat file database vs. relational database.  
c) Write a note on Database Security. (5+5+5)
5. a) Briefly explain hierarchical model.  
b) Explain the functions of Database Management System.  
c) Explain the features of MYSQL. (5+5+5)

#### Unit – III

6. a) Explain the steps involved in processing an SQL statement.  
b) Explain the statements with an example.  
i) UPDATE ii) DELETE  
c) Explain SQL Logical operators. (5+5+5)
7. a) Explain SELECT statement in SQL and its variations.  
b) Explain the concept of Primary Key and Foreign Key with the help of an example.  
c) Explain any five Aggregate functions. (5+5+5)

#### Unit – IV

8. a) Briefly explain SAS architecture with diagram.  
b) What are permanent and temporary SAS libraries ? Explain.  
c) Explain different mathematical functions in SAS, with an example. (5+5+5)
9. a) Explain the necessary steps required to write a SAS program with an example.  
b) How do you import an external file in SAS ? Explain with an example.  
c) With syntax and programming example explain DO statement in SAS. (5+4+6)
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**BCACAC 381**



**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, September 2022  
(2021-2022 Batch Onwards)  
E-COMMERCE**

Time : 3 Hours

Max. Marks : 80

**Note : Answer any ten questions from Part – A and one full question from each Unit in Part – B.**

**PART – A**

1. a) Define electronic commerce. (10x2=20)  
b) List the different phases of an e-commerce market element.  
c) Define a business model.  
d) What is VAN ? Give any 2 services of VAN.  
e) What is the use of business service infrastructure in e-commerce ?  
f) What is a micro payment ?  
g) What is ALOHA ?  
h) Name any 4 cabling systems used in IEEE 802.3 LAN.  
i) What is FTP ? Why is it used ?  
j) What is a packet sniffer ?  
k) What is PGP ?  
l) Define Mobile Commerce.

**PART – B**

**Unit – I**

2. a) Explain the B2C E-commerce with an example.  
b) What are native content business models ? Explain any two types of models in this category.  
c) Write any three applications of E-commerce technologies. (5+7+3)

P.T.O.



3. a) Explain the benefits of e-commerce.
- b) What are the services provided by web hosting and internet services model ?
- c) Explain the B2B E-commerce with an example. **(5+5+5)**

**Unit – II**

4. a) Explain the layered architecture of an EDI system with a neat diagram.
- b) Explain the different protocols and their services in the network service infrastructure.
- c) Explain the working of E-Cash payment system with a neat diagram. **(6+4+5)**
5. a) Explain the different benefits of EDI.
- b) Explain the services provided by networked multimedia content publishing in e-commerce.
- c) Discuss the basic requirements of an online payment system. **(5+4+6)**

**Unit – III**

6. a) Explain the TCP/IP reference model with a neat diagram.
- b) Explain the architecture of an e-mail system with a neat diagram. **(8+7)**
7. a) Explain any two types of topologies in a LAN with neat diagrams.
- b) Describe the domain name system and how it manages the name space.
- c) Write a short note on WWW server. **(5+5+5)**

**Unit – IV**

8. a) What do you mean by denial of service ? Explain the measures to prevent it.
  - b) What are the different types of network transaction security issues ?
  - c) Explain 3G networks. **(5+5+5)**
  9. a) What is a firewall and how does it protect a site ? Name the different types of firewalls.
  - b) Explain the conventional encryption model with a neat diagram.
  - c) Explain the major impediments faced by the mobile commerce environment. **(5+5+5)**
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**BCACAC 383**



**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, September 2022  
(2021-2022 Batch Onwards)  
SOFTWARE TESTING**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer **any ten** questions from Part – A and **one full** question from **each** Unit in Part – B.

PART – A

(10×2=20)

1. a) What is Software Testing ?
- b) Define Defect, Error and Mistake in software.
- c) List the methods for Verifications.
- d) What is Big Bang Testing ?
- e) What is an acceptance Plan ?
- f) List the various testing stages.
- g) Define Graphical User Interface Testing.
- h) Define Documentation Testing.
- i) Differentiate Static and Dynamic Testing Tools.
- j) Define Test Policy.
- k) What is Test Log Document ?
- l) Differentiate External and Internal Test standards.

PART – B

Unit – I

2. a) Explain the important features of Testing.
- b) Explain the different levels of validation.
- c) Explain Verification Work Bench.

(5+5+5)

P.T.O.



- 3. a) What are the challenges faced by testers ?
- b) Describe the process of inspection.
- c) Briefly explain the Testing Process. (5+5+5)

**Unit – II**

- 4. a) Explain various characteristics of Requirement Testing.
- b) Describe alpha testing. What are its advantages and disadvantages ?
- c) Describe customer responsibilities during acceptance testing. (5+5+5)
- 5. a) Describe code review and unit testing process.
- b) Describe Beta testing. What are its advantages and disadvantages ?
- c) Describe bottom-up approach for integration. (6+5+4)

**Unit – III**

- 6. a) Explain Procurement of COTS.
- b) Explain Recovery Testing.
- c) Mention the guidelines for selecting a Testing Tool. (6+5+4)
- 7. a) Write a note on Security Testing.
- b) Explain the Installation Testing.
- c) Mention the difficulties faced while introducing New Tools. (5+6+4)

**Unit – IV**

- 8. a) Briefly explain the guidelines for Developing the Test Plan.
  - b) Explain Different Test Reports.
  - c) Explain the categories of Testing Related Data. (6+4+5)
  - 9. a) Briefly explain the characteristics of Good Test Scenario.
  - b) Explain Estimated, Budgeted, Approved and Actual Efforts.
  - c) Write a note on Bench Marking. (6+4+5)
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