(3 Hours)   **[Total Marks: 100]**

N. B.:   (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1.   **Attempt _any two_ of the following:**   **10**
a.   Describe OSI security architecture.
b.   What is signature scheme? List some of its examples.
c.   What are the groups of IP security document?
d.   Write a note on IKE (Internet Key Exchange) protocol & SA (Security association).

2.   **Attempt _any three_ of the following:**
a.   What are the different modes of DES? Explain any one in detail
b.   What are ciphers? What is the difference between "Transposition Cipher" and "Substitution Cipher"?
c.   Explain the working of DES.
d.   Explain p-1 factoring algorithm.
e.   Define Cryptosystem. Explain it with suitable diagram.
f.   Explain the working of Affine Cipher with an example.

3.   **Attempt _any three_ of the following:**   **15**
a.   Write a short note on ElGamal Signature Scheme.
b.   What is the concept of birthday attack? Explain.
c.   Explain digital signature standard.
d.   What is signature scheme? List some of its examples.
e.   What are the types of different attack models of signature scheme?
f.   Describe Diffie-Hellman key exchange algorithm.

4.   **Attempt _any three_ of the following:**   **15**
a.   What is active attack? Illustrate your explanations.
b.   Define Computer security and objectives of computer security.
c.   Explain Network security model in detail
d.   Explain the different types of attacks.
e.   Explain the following terms:
i)Authentication ii)Access Control iii)Non-Repudiation
f.   Explain "Replay attack and Traffic Analysis" with suitable examples.

[Turn Over]

5. **Attempt _any three_ of the following:** 15
a   What is Public Key Infrastructure? What are the required functionalities for that?
b   Describe S/MIME with a neat diagram.
c   Explain the working of pretty good privacy
d   What are the various Web security protocols?
e   Explain PKCS system.
f   What four requirements were defined for Kerberos?

6. **Attempt _any three_ of the following:** 15
a.   Give examples of situations where IPSec is used?
b.   Explain the various participants in SET (Secure Electronic Transaction).
c.   What are the services provided by IPSec?
d.   What is the difference between SSL connection and SSL session?
e.   What are the business requirements for secure payment processing with credit cards over the internet?
f.   What is the difference between tunnel mode and transport mode with respect to IPSec? Why does ESP include a padding field?

7. **Attempt _any three_ of the following:** 15
a.   What is intrusion detection system? Explain its benefits.
b.   List and explain four techniques used to avoid guessable passwords.
c.   Explain the different firewall configurations.
d.   Explain briefly the classes of intruders.
e.   Write a short note on DDos.
f.   What is a firewall? List its advantages and disadvantages.

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(3 Hours) **[Total Marks: 100]**

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(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt _any two_ of the following:** 10
a. Differentiate between structures and classes.
b. Explain variable sized arrays with suitable example.
c. Write a short note on .NET Framework.
d. Are multiple Main() methods allowed in C#? Justify with an example.

2. **Attempt _any three_ of the following:**
a. Explain the concept of private and shared assembly.
b. What is exception handling? Explain the syntax of exception handling code. What is the use of finally block?
c. Explain the different keywords used for interrupting the loops.
d. Explain the concept of boxing and unboxing.
e. Define inheritance and polymorphism. Explain how multiple inheritance is supported by classes in C#.
f. Explain Write() and WriteLine() Methods with examples..

3. **Attempt _any three_ of the following:** 15
a. What is the use of menus and toolbars in Windows application? Explain,
b. What is Common DialogBox? Explain FontDialog with suitable example.
c. What is ArrayList? State its methods and properties.
d. Differentiate between ListBox and ComboBox controls.
e. Write a windows application to change the color of form into Red, Green and Blue upon clicking the respective buttons. [Hint: Drag three buttons and Label them. Write the necessary events.]
f. State the conventions that are used with events.

4. **Attempt _any three_ of the following:** 15
a. What is post-back event? Explain with suitable example.
b. Explain .NET Framework architecture in detail.
c. Explain the work of session state in ASP.NET.
d. What is CSS? Explain inline and embedded CSS.
e. Explain ViewState with suitable example.
f. What is the difference between themes and skins in ASP.NET?

[Turn Over]

5. **Attempt _any three_ of the following:** 15
a How do we create a User control in ASP.NET?
b When do we have to use TreeView control in ASP.NET?
c Explain the following validation controls with example
(i) CompareValidator (ii) CustomValidator (iii) RangeValidator
(iv) RegularExpressionValidator (v) RequiredFieldValidator
d Explain Request and Response objects of ASP.NET.
e What are the benefits of using a custom enumeration like Direction over built-in types like System.Byte or String.
f What are the different ways to redirect a user to another page programmatically? What's the difference between them?

6. **Attempt _any three_ of the following:** 15
a. Explain ADO.NET object model with help of suitable diagram.
b. Write the necessary steps for connecting to the SQL server database.
c. What is the difference between DataReader and DataAdapter? Explain.
d. State the ways of deployment of website in ASP .NET.
e. Write a note on Authorization and Impersonation.
f. Explain any four Standard Query operators in LINQ.

7. **Attempt _any three_ of the following:** 15
a. Brief the concept of JQuery.
b. Write short note on ScriptManager and UpdatePanel Controls.
c. Explain DOM manipulation methods in jQuery.
d. Write a jQuery application to give Fade In and Fade Out effects. [Make necessary assumptions for the program.]
e. Explain the difference between AJAX Page Processing and Traditional Page Processing.
f. What is web service? Explain the basic steps to create a web service using ASP.NET with C#.

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(3 Hours) **[Total Marks: 100]**

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(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt _any two_ of the following:** 10
a. Compare Black Box, White Box and Grey Box Testing.
b. Explain the issues in Object Oriented Testing.
c. What is cyclomatic complexity? Explain with an example.
d. State and explain the Levels of Testing.

2. **Attempt _any three_ of the following:**
a. What is quality? Explain any four components of quality.
b. State and explain different quality factors.
c. Explain TQN in cost perspective.
d. State the methods or techniques of Verification. Explain any two.
e. Compare between continuous and continual Improvement in testing.
f. Explain validation workbench.

3. **Attempt _any three_ of the following:** 15
a. What is equivalence partitioning? Explain the types of Equivalence Class Testing.
b. Write a note on State Transition Based Testing.
c. Explain DD-Path with an example.
d. What are the advantages of functional testing?
e. What is retrospection? Explain with reference to functional testing.
f. A rectangle program accepts four integers as lengths for four sides of length from 1 to 100, inclusively. The output of the program is to determine whether the inputted numbers can form a rectangle, square or neither of these.
    i. Create a decision table for the above problem with any five rules.
Provide a test case for each given rule.

4. **Attempt _any three_ of the following:** 15
a. What is data flow testing? Explain with an example.
b. What is Program graph? Explain the terminologies used to construct program graph.
c. What is path testing? Explain with an example.
d. Write a note on Du Path Test Coverage Metrics.
e. Write a note on Metric Based Testing.
f. What are the advantages and disadvantages of Structural Testing?

[Turn Over]

5. **Attempt _any three_ of the following:** 15
a What is integration Testing? Give its advantages.
b Write a note on acceptance testing
c Explain the advantages and disadvantages of Bottom Up Approach.
d Explain the significance of Integration Testing.
e Enumerate the objectives and benefits of Unit Testing.
f Explain Acceptance Testing in detail.

6. **Attempt _any three_ of the following:** 15
a. What is UML? Discuss UML Support for Object Oriented Integration Testing.
b. What is the significance of performance testing? With reference to Object Oriented System Testing.
c. Write a note on Object Oriented Integration Testing.
d. How is Object Oriented Software Testing different from Conventional Testing?
e. What is Class Testing? Discuss the issues related to class testing.
f. Explain the various levels of Object Oriented Testing.

7. **Attempt _any three_ of the following:** 15
a. What is the need for Test Process Improvement?
b. State the advantages and disadvantages of qualitative analysis.
c. Explain the guidelines for developing a test plan.
d. What is test Metrics? Discuss any 5 types of Test Metrics.
e. State the important guidelines for developing a Test Plan.
f. Define the term 'Efforts' and explain the different types of Efforts.

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[Time: 3 Hours]   [Marks: 100]

N.B. : (1) **All** questions are **compulsory.**

(2) **Make suitable assumptions** wherever necessary and state the assumptions made.

(3) Answers to the **same question** must be written together.

(4) Numbers to **right** indicate **marks**.

(5) Draw **neat labeled diagrams** wherever necessary.

(6) Use of **non-programmable** calculations is **allowed**.

1. Attempt **any two** of the following   10
   a) Difference between AWT and Swing.
   b) List the different ways of session tracking. Write syntax for adding cookie file in Java.
   c) What are the various methods of Statement interface in JDBC.
   d) What is Email ? Explain the anatomy of Email message.

2. Attempt **any three** of the following   15
   a) Explain any three Event classes with their respective Event Listeners
   b) Write a program in swings to accept the username and password from the user and display message in a messagebox "Valid user" if username and password is "admin" else "Invalid user".
   c) Explain event delegation model with an example.
   d) Explain the various Text Components along with its constructors.
   e) Create a JTable as follows :

Name	Address	Phone
Abc	Lmn	123
Pqr	www	456

   f) Write a java program to demonstrate JTree.

3. Attempt **any three** of the following   15
   a) Explain HttpServlet with its constructors and methods.
   b) Write a servlet application to accept a number from the user and display the square and cube of the number.
   c) List and explain any 3 interfaces in javax.servlet package.
   d) Why servlet is preferred over CGI
   e) Explain the life cycle of servlet.
   f) Write a program to demonstrate session tracking using HttpSession interface.

4. Attempt **any three** of the following   15
   a) Explain the type 1 driver used in JDBC.
   b) Explain the scrollable and updatable resultsets in JDBC
   c) List the four object scopes in JSP. Demonstrate any one with example.
   d) Write a JDBC program that inserts values in database using prepared statement through keyboard input. [TABLE NAME: Employee. FIELDS: Empid, Name, Dept, Designation]
   e) List and explain various implicit objects used in JSP.
   f) Write the syntax of various tags used in JSP.

5. Attempt **any three** of the following   15
a) Write a short note on MVC architecture
b) Explain the advantages of EJB.
c) Explain in detail the phases of JSF Life cycle.
d) Explain the structure of faces-config.xml file
e) Write a model and navigation rules to find the simple interest of a given principal, interest and terms. (in JSF)
f) List and explain the various types of beans.

6. Attempt **any three** of the following   15
a) Explain the structure of hibernate.cfg.xml
b) Explain the importance of mapping and show the creation of mapping file in hibernate framework.
c) Write a short note on interceptors in struts.
d) Explain hibernate architecture
e) What is value stack in struts ? State and explain the execution flow of value stack.
f) Explain in detail the core components of struts framework.

7. Attempt **any three** of the following   15
a) What are naming and directory services.
b) Explain the different types of Mail protocols.
c) Write a short note on following
    - Session in Java Mail.
    - Authenticator.
d) Explain the components of web service.
e) Write a short note on SOAP.
f) Write a short note on java mail API.

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(3 Hours) **Total Marks : 100**

Note : 1) **All** questions are **compulsory.**
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5) Draw **neat labeled diagrams** wherever **necessary.**
6) Use of **Non-programmable** calculators is **allowed**

1. Attempt **any two** of the following: **10**
(a) Explain the features of Linux in detail with different Linux Distribution.
(b) List and explain different types of domain name servers.
(c) How can rc scripts be managed using chkconfig? Explain.
(d) What is RAID? Explain different levels of RAID.

2. Attempt **any three** of the following: **15**
(a) What is GRUB loader? How does it differ from Linux Loader?
(b) Explain the stages of Linux boot process.
(c) Explain bootstrapping in Linux.
(d) What is RC Scripts?
(e) Write a short note on ext3 file system.
(f) What is partitioning of a hard disk? What are the different partitions to be created in Linux? What is swap partition?

3. Attempt **any three** of the following: **15**
(a) State and explain any five files that deal with system environmental settings.
(b) What are the files required to be changed when we setup a new system or move the system from one location to another?
(c) Write a short note on IP addressing.
(d) How is DHCP client configured? Explain.
(e) Short note on subnetting.
(f) What is NFS? Explain with example.

4. Attempt **any three** of the following: **15**
(a) How to install samba server in linux?
(b) What are the steps in configuring squid?
(c) Explain the concept of catching proxy server.
(d) Write and explain the default NTP configuration file.
(e) What are the steps to Configure Linux Firewall packages?
(f) How can we optimize NFS? Explain.

5. Attempt **any three** of the following: **15**
(a) Short note on DNS
(b) Explain the files required to configure DNS server.
(c) How can anonymous uploads accounts be enabled vsftpd? Explain.
(d) Explain the different ways to maintain email security on Linux.
(e) State and explain any five SSL-related configuration directives while running vsftpd over SSL.
(f) Explain any five parameters of vsftpd.conf file.

6. Attempt **any three** of the following: 15
(a) Explain Apache web server with its features.
(b) Explain configuration of SSI on Apache with script in detail
(c) Write the purpose of global configuration directives of httpd.conf
(d) What is the searching and indexing system provide with Linux? Explain its features.
(e) What is RSS feed? Explain the elements required in an RSS feed
(f) What are the common mailman administrative tasks? Explain.

7. Attempt **any three** of the following: 15
(a) Explain useradd command with any five options.
(b) Why should we upgrade or customize Linux kernel?
(c) How can we improve the performance of web services on a Linux server? Explain.
(d) State and explain any five rpm command line options.
(e) What is sudo? What are its features? How does sudoseesion work after the creation of configuration file?
(f) How can we optimize FTP services on a Linux server? Explain.

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Q. P. Code: 38254

(3 Hours)   **[Total Marks: 100]**

N. B.: (1) Question **No. 1** is **compulsory**.
(2) Attempt **any four** from **Question Nos. 2 to 7**.
(3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.
(7) Use of **Non-programmable** calculators is **allowed**.

1	**A**	Why do we need security? Discuss.	**5**
	B	Write note on Incident Handling.	**5**
	C	What is security policy? Who is involved in formation of security policy?	**5**
	D	Explain the Caesar Cipher Scheme with an example. How to break Caesar Cipher?	**5**
2	**A**	You are assigned the job of system administrator of a company. Explain how you will try to secure your network from the following that pose a threat to the security. i. Viruses ii. Hackers iii. Employees iv. Cookies	**8**
	B	What are the different types of viruses? Explain the structure of viruses.	**6**
	C	What firewalls can do? What firewalls cannot do? Where should we implement the firewall?	**6**
3	**A**	State and explain different security models.	**8**
	B	Write a note on Digging of worms.	**6**
	C	Discuss in detail the classification of attacks.	**6**
4	**A**	Discuss in detail Risk Analysis.	**8**
	B	What do we mean by proxy servers? Explain their working in detail. How are they different from circuit gateways?	**6**
	C	Write a note on Botnets.	**6**
5	**A**	What is the difference between the substitution cipher and transposition cipher? What will be the output of the following plain text if we use Caesar Cipher to encode it? "Social Engineering"	**8**
	B	What are bugs and backdoors? What prevention mechanism can be used for them?	**6**
	C	Explain in general working of Digital Signatures.	**6**
6	**A**	Write the Diffie-Hellman Key Exchange algorithm and explain it in brief. Alex and Bob want to establish a secret key using this algorithm. Given: n=11, x=2, y=3. Find the values of secret key (K1 and K2)	**8**
	B	What are the different ways of sniffing the password? How password sniffing can be avoided?	**6**
	C	Explain the concept of filtering by service with respect to TELNET.	**6**
7	**A**	Define message digest. Write any one message digest algorithm.	**8**
	B	What is meant by public key and private key in cryptography? What is encryption and decryption of message? What is there importance in transmitting information over the network?	**6**
	C	Explain what you mean by Plain Text, Cipher Text, Encryption and Decryption.	**6**

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(3 Hours)   **[Total Marks: 100]**

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      (6) Draw **neat labeled diagrams** wherever **necessary**.
      (7) Use of **Non-programmable** calculators is **allowed**.

1	A	"The visibility of a variable is referred to as its scope". Comment	5
	B	Explain free file function with an example.	5
	C	Write a short note on control array.	5
	D	Explain the user defined data types with suitable examples.	5

2	A	Create a project to accept a character from the user. Provide a button "CHECK VOWEL", which will check if the character is a vowel and display in a message box "Character entered is a vowel" else "Character entered is a consonant".	8
	B	Explain the different modes of file operation.	6
	C	Explain in detail message box function.	6

3	A	Create a project to declare a class that will store CODE, NAME, AGE and SALARY of an employee. Provide a calculate button for BONUS calculation which is 10% of the salary. Display all the details along with bonus in a message box.	8
	B	Describe the purpose of each of the following methods or properties for a list box control with example i. AddItem ii. RemoveItem iii. ListCount	6
	C	Explain the following controls in detail i. Text box ii. Images	6

4	A	Create a project to maintain the state names and their two letter abbreviation in a sequential file. Allow the user to add state names and its abbreviation. Provide a search button to find the abbreviation based on the state name entered by the user in a text box. If no match is found, print an appropriate error message. (Sample Data; Maharashtra=MH, Gujarat=GJ, Goa=GA, etc.)	8
	B	Explain defining keyboard access keys and setting tab order for controls.	6
	C	What are the various ways of using FOR-NEXT loop?	6

[TURN OVER]

5	**A**	What will be printed for each of this code segment:	**8**
		i. Printer.Print "Half a loaf";	
		Printer.Print "is better than one"	
		ii. Printer.Print "Half,",",""My Eye"	
		iii. Printer.Print "Hawks";0, "Doves";0	
		iv. Printer.Print 1,2,3,4,5,6	
	B	Explain font and color dialog box in detail.	**6**
	C	How can we create new objects in Visual Basic?	**6**
6	**A**	Create a project to display the information of publisher table from books.mdb include command buttons for record navigation. Hide the data control. Allow user to add and delete records using buttons.	**8**
		(Publisher {publisher_id, name, company_name, city, state, zip, telephone_no})	
	B	What are the ways for creating new sub procedure? How are variables passed to the procedure?	**6**
	C	Explain the different windows of integrated development environment.	**6**
7	**A**	Explain LEFT, RIGHT, MID and LEN string functions	**8**
	B	How can we create a new DYNASET? Give example.	**6**
	C	How are the Visual Basic projects debugged?	**6**

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(3 Hours)   **[Total Marks: 100]**

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1	A	Differentiate between DML and DDL statements.	5
	B	What are views? State the difference between views and tables.	5
	C	Explain correlated sub queries with example.	5
	D	Explain the access control statements in SQL.	5

2 A Write SQL statement to create WORKERS, SECTIONS, and AREAS tables with all the   8
constraints as given after Q. No. 7
  B Write a short note on data types of SQL2.   6
  C Explain IN, ANY and ALL in SQL2.   6

3 A Write the SQL queries for the following (refer to the tables given after Q. No. 7)   8
    i.   List all the first name and last name of workers with their managers.
    ii. List the entire worker id and worker name who belong to section id 25.
    iii. List first name, section name and area name of all employees.
    iv. List worker id, first name concatenated with salary and commission from the workers
    table. For e.g. worker_id: first_name's salary Rs. XXXXX has commission Rs. XXX
  B State and explain aggregate functions.   6
  C Explain primary key and foreign key with an example.   6

4 A Write the SQL queries for the following (refer to the tables given after Q. No. 7)   8
    i.   List the workers whose salary is below 25000 and commission is between 2000 and
    5000.
    ii. List the names of the employees whose first_name starts with 'A' or 'B'.
    iii. List the first_name of workers in the ascending order of the section and within that in
    the descending order of the salary.
    iv. List the section name, section id and area name whose area id is 7 or city is 'DELHI'.
  B Write a short note on joins.   6
  C Explain the following in-built SQL2 functions with examples   6
    i.SUBSTR   ii. CAST   iii. TRIM

[TURN OVER]

1

5 A Write the SQL queries for the following (refer to the tables given after Q. No. 7) **8**
    i. List the worker id, salary, section name and area name of workers who have completed more than 3 years.
    ii. List the first name, last name and hire date of workers who work in the section which is in city 'BANGALORE'.

B What is locking and why is it required? **6**

C What are the different problems that occur due to concurrency? **6**

6 A Write the SQL queries for the following (refer to the tables given after Q. No. 7) **8**
    i. Write a query to display each sections name, area, number of workers and the average salary for all the workers in that section. Label the columns Name, Location, Number of People and Salary, respectively. Round the average salary to two decimal places.
    ii. Display the manager number and the salary of the lowest paid worker for that manager. Exclude anyone whose manager is not known. Exclude any groups where the minimum salary is 40000 or less. Sort the output in the descending order of the salary.

B Explain single database and multi database architecture. **6**

C Explain UNION and ORDER BY with examples. Differentiate between the two. **6**

7 A Write the SQL queries for the following (refer to the tables given after Q. No. 7) **8**
    i. Write a query that produces the following for each worker:
    <worker last name> earns <salary> monthly but wants <3 times salary>. Label the column Dream Salaries.
    ii. Create a view called WORKERS_VU based on the workers id, workers last name and section id from the workers table. Change the heading for the workers name to EMP NAME.

B What are triggers? Explain its syntax with an example. **6**

C Explain the concept of null values. How can null values be inserted in a table? **6**

Table: WORKERS

ATTRIBUTE	DATA TYPE	CONSTRAINT
WORKER_ID	NUMBER	PRIMARY KEY
FIRST_NAME	VARCHAR	
LAST_NAME	VARCHAR	
EMAIL	VARCHAR	
HIREDATE	DATE	
SALARY	NUMBER	
MGR_ID	NUMBER	FOREIGN KEY REFERRING WORKERS (WORKER_ID)
COMM_PCT	NUMBER	
SECTION_ID	NUMBER	FOREIGN KEY REFERRING SECTION (SECTION_ID)

[TURN OVER]

Table: SECTIONS

ATTRIBUTE	DATA TYPE	CONSTRAINT
SECTION_ID	NUMBER	PRIMARY KEY
SECTION_NAME	VARCHAR	
MGR_ID	NUMBER	FOREIGN KEY REFERRING WORKERS (WORKER_ID)
AREA_ID	NUMBER	FOREIGN KEY REFERRING AREA (AREA_ID)

Table: AREAS

ATTRIBUTE	DATA TYPE	CONSTRAINT
AREA_ID	NUMBER	PRIMARY KEY
AREA_NAME	VARCHAR	
CITY	VARCHAR	

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(3 Hours) **[Total Marks: 100]**

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    (2) Attempt **any four** from **Question Nos. 2 to 7**.
    (3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
    (4) Answers to the **same question** must be **written together**.
    (5) Numbers to the **right** indicate **marks**.
    (6) Draw **neat labeled diagrams** wherever **necessary**.
    (7) Use of **Non-programmable** calculators is **allowed**.

1	A	Write a short note on MPEG compression	5
	B	Write a short note on MIDI.	5
	C	Write a short note on Storyboarding	5
	D	Explain the term : Anti-aliasing ,3D animation	5
2	A	What is a Multimedia systems? State the different types of components in multimedia systems.	8
	B	Explain the difference between lossy and lossless compression.	6
	C	Explain any two types of file formats in multimedia.	6
3	A	What is a Run-length encoding? Explain with a suitable example.	8
	B	What are the multimedia authoring tools? Explain them.	6
	C	Write a short notes on Sampling and Quantization.	6
4	A	Discuss the detail of Content analysis for different applications.	8
	B	Describe RGB Color Model. Why it is called as additive color model.	6
	C	Describe CMYK Color Model. Why it is called as subtractive color model.	6
5	A	Explain the Huffman Coding algorithm with suitable example.	8
	B	Explain any two tools for creation of multimedia presentation.	6
	C	Write a short note on Interpolation.	6
6	A	Explain the issues concerning problems of transfer of data on networks.	8
	B	Write a short of Computer based training (CBT).	6
	C	List and explain different types of audio file formats.	6
7	A	Explain the process of JPEG Compression.	8
	B	Briefly discuss the graphic file format used in web application	6
	C	What are different types of tools used in animation? Explain each of them.	6

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(3 Hours)   **[Total Marks: 100]**

N. B.: (1) Question **No. 1** is **compulsory**.
      (2) Attempt **any four** from **Question Nos. 2 to 7**.
      (3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
      (4) Answers to the **same question** must be **written together**.
      (5) Numbers to the **right** indicate **marks**.
      (6) Draw **neat labeled diagrams** wherever **necessary**.
      (7) Use of **Non-programmable** calculators is **allowed**.

1	**A**	Explain the blinking LED program in detail.	**5**
	B	Define build process and explain steps involved in it.	**5**
	C	Why is C The Least Common Denominator in embedded systems?	**5**
	D	Explain why "hello world" program is a difficult program to begin with in learning to program embedded systems.	**5**
2	**A**	Explain the concept of Remote debugger.	**8**
	B	Explain in short memory map of processor.	**6**
	C	Explain common memory problems in embedded systems memory.	**6**
3	**A**	Why do we need memory testing, what are different types of testing, is it necessary to perform this in sequence, If yes then what is sequence and why?	**8**
	B	Explain the following Address bus test.	**6**
	C	Explain the problem of flash memory and concept of flash driver.	**6**
4	**A**	Explain scheduling point, idle task, and ready list with respect to embedded operating system.	**8**
	B	Explain the concept of Watchdog driver.	**6**
	C	Explain the concept of Context switch.	**6**
5	**A**	Give brief explanation of different types of memory devices.	**8**
	B	Explain the concept of Scheduler.	**6**
	C	Explain how code is downloaded in the ROM of embedded systems.	**6**
6	**A**	Write Short note - Real time character of an operating system & Embedded IDE	**8**
	B	Explain direct memory access.	**6**
	C	Explain in short interrupt map of processor.	**6**
7	**A**	Explain Control and Status registers.	**8**
	B	Explain Simulators, Logic analyzer, Oscilloscope.	**6**
	C	Explain variations in Embedded systems.	**6**

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B.SC (I.T.) (SEM-V) (OLD)
(ELECTIVE – I)
WEB DESIGN AND INTERNET
BASED APPLICATIONS.
(MAY - 2018)

Q. P. Code: 37247

(3 Hours)   **[Total Marks: 100]**

N. B.: (1) Question **No. 1** is **compulsory**.
(2) Attempt **any four** from **Question Nos. 2 to 7**.
(3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.
(7) Use of **Non-programmable** calculators is **allowed**.

1	A	Explain <IFRAME> tag with its attributes.	5
	B	Explain <LINK> tag with its attributes. Give examples.	5
	C	Create an asp page that will take an input a number and display reverse of that number	5
	D	Write a VBSCRIPT function to print all prime numbers from 1 to100.	5

2	A	Write a note on Session and Connection Pooling.	8
	B	Explain the conditional statements of VB Scripts with example.	6
	C	Explain <IMG> tag with example.	6

3 A Explain the following HTML tags: <FRAME> and <FRAMESET> with example.   **8**
B Write HTML code to design the following: **6**
    1. Indoor Games
       a. Computer oriented
          i. Bug debug
          ii. NFS
       b. Non Computer oriented
          i. Carom
          ii. Chess
    2. Outdoor Games
       a. Cricket
       b. Football
C Explain Server object with its methods. Give example.   **6**

4	A	What are cookies? How cookies are created? Set Lifetime of cookie.	8
	B	Explain Logical operators of VB Script with examples.	6
	C	Explain <DL>, <DT> & <DD> with examples.	6

5 A State and explain the following advanced features of Connection Object: **8**
(i) Transaction Property   (ii) Open Schema Method
B With example discuss following form collection tags.   **6**
(i) <TEXTAREA> (ii) <FORM>
C What are the different approaches to Style Sheets? Give example of each.   **6**

[TURN OVER]

6 A List and explain with syntax various FORM controls placed by <INPUT> tag. **8**
   B Explain three ways to connect to a MS Access database using ASP. **6**
   C Write a VBScript code to accept a word. Check whether it is in lowercase or uppercase. If **6**
      in lower case, convert in uppercase and if in uppercase, convert in lower case and display
      it.

7 A Write HTML Code for the following HTML Page **8**

Trends of Revenue for a firm

Price (Rs.) (P)	Quantity Sold(QR)	Total Revenue (TR)	Average Revenue (AR)
2	▼		
4	▼		
5	▼		
7	▼		
Calculate			

Quantity-sold should be a drop down box with values: 2, 4, 6, 8, 10, and 12. Only one
value can be selected at one time. Price cannot be modified.

   B Write VBScript function to validate above form as follows: **6**
      TR and AR should be greater than zero and numeric. On click of Calculate button, display
      TR and AR using the formulas TR= P x QS, AR=P.
   C Write ASP code to create a table PRODUCT (id, name, price, qty) in database ACM.MDB. **6**
      Also insert two records in this table.

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(3 Hours) [Total Marks: 100]

N. B.: (1) Question **No. 1** is **compulsory**.
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(3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.

1	A	Write a short note on JLabel and JButton with an example program.	5
	B	Explain the steps to be followed in Java Database Connectivity for accessing a database table content.	5
	C	What are servlets? Explain the request/response paradigm of servlets.	5
	D	Write a JSP program to accept a number from the HTML form, and find its square root and cube root.	5
2	A	List and explain the layout orientation used for JList? Give suitable example.	8
	B	Write a short note on JTree with an example.	6
	C	Create a GUI program that add tabs in a window. Add three tabs tab1, tab2 and tab3 that load Panel1, Panel2 and Panel3 respectively. Panel1 consist of 2 labels, Panel2 consist of 2 textboxes and Panel3 consist of two radio buttons.	6
3	A	Explain the following i) Root Pane ii) Glass Pane iii) Layered Pane iv) Content Pane	8
	B	Write a short note on JPanel.	6
	C	Explain the procedure of creating message, input and confirmation dialogs in swing.	6
4	A	Write a short note on JDBC Architecture.	8
	B	Explain Connection interface along with its methods.	6
	C	What is mean by ResultSetMetaData interface? List down the methods of ResultSetMetaData interface.	6
5	A	Write a JDBC program that inserts dynamic values into a student table by accepting the values from the user. The structure of student table is (rollno, name and marks).	8
	B	Define the Servlet interface. Describe the methods of Servlet Interface.	6
	C	Explain the life cycle of a servlet.	6
6	A	Write a servlet program to find the number is prime or not.	8
	B	Describe the various methods of HttpServletRequest and HttpServletResponse interface.	6
	C	What is JAR files? List and explain various options used while creating a JAR file.	6
7	A	Explain the following : a) JSP scriptlets b) JSP expressions c) JSP Comments d) JSP declarations	8
	B	Enlist the implicit objects of JSP. Explain any 4 of them in detail.	6
	C	Explain with an example how session management is done in JSP.	6

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B.SC (I.T.) (SEM-V) (OLD)
. **(ELECTIVE – II)**
ERP SYSTEMS
(MAY - 2018)

Q.P. Code: 37236

(3 Hours)   [Total Marks: 100]

N. B.: (1) Question **No. 1** is **compulsory**.
(2) Attempt **any four** from **Question Nos. 2 to 7**.
(3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.
(7) Use of **Non-programmable** calculators is **allowed**.

1	A	Who are ERP consultants? Explain their roles.	5
	B	Explain the concept of EIS.	5
	C	Give the advantages of ERP.	5
	D	Explain the concept of BPR.	5
2	A	Explain the importance of end user training in ERP implementation life cycle.	8
	B	What is data mining? State the need of computerized and automated mining tools.	6
	C	What do you mean by integrated management information?	6
3	A	What is OLAP? How it differs from OLTP.	8
	B	What is cycle time reduction? How is it implemented?	6
	C	Explain the importance of plant maintenance module.	6
4	A	Which companies are called "Big 5" in the ERP market and why?	8
	B	Will ERP systems eliminate clerical jobs? If yes, what should those employees do?	6
	C	Explain the concept of GAP analysis.	6
5	A	What is MIS? What are the main differences between MIS and data processing system?	8
	B	What is data warehouse? Why do you need a data warehouse?	6
	C	Describe the functions of material management.	6
6	A	Explain the personnel management system of HR.	8
	B	What is the impact of internet and www on ERP products?	6
	C	Explain the features of SAP/R3 module.	6
7	A	What are the drawbacks of in-house development of ERP?	8
	B	State and explain the sub system of financial module.	6
	C	How is ERP package evaluated?	6

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(3 Hours)   **[Total Marks: 100]**

N. B.: (1) Question **No. 1** is **compulsory**.
   (2) Attempt **any four** from **Question Nos. 2 to 7**.
   (3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
   (4) Answers to the **same question** must be **written together**.
   (5) Numbers to the **right** indicate **marks**.
   (6) Draw **neat labeled diagrams** wherever **necessary**.
   (7) Use of **Non-programmable** calculators is **allowed**.

1	A	What is a Map and what are its types?	5
	B	Explain the relevance of Geographic Information Systems in Information Technology.	5
	C	Explain the social and institutional context of Geographic Information System.	5
	D	Explain Raster model of data representation in a Geographic Information System.	5
2	A	Explain the components of Geographic Information System.	8
	B	Explain the different types of data in Geographic Information System.	6
	C	Explain the concept of neighborhood operations in detail with example.	6
3	A	Explain the various modes of scanning.	8
	B	What is digitization scheme?	6
	C	Explain the Importance of Geographic Information System in transportation system.	6
4	A	Explain vector data model of data representation.	8
	B	Explain physical distance measures using an example.	6
	C	Write short notes on Theissen Polygon & density estimation.	6
5	A	Define Geographic Grid and explain its characteristics.	8
	B	What are the applications of Geographic Information System?	6
	C	What is map resolution and its types?	6
6	A	Explain spatial autocorrelation.	8
	B	Define Zonal operations & explain its applications.	6
	C	Differentiate between spatial and aspatial data.	6
7	A	Define co-ordinate system. Explain its significance. What are co-ordinate transformations?	8
	B	Explain terrain map and analysis in detail.	6
	C	What is map projection? List and explain its types.	6

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Q. P. Code: 37232

(3 Hours) [Total Marks: 100]

N. B.: (1) Question **No. 1** is **compulsory**.
(2) Attempt **any four** from **Question Nos. 2 to 7**.
(3) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.
(7) Use of **Non-programmable** calculators is **allowed**.

1 **Answer the following:**
A	What are the parameters of the quality product? Explain.	5
B	What is MIS? Explain the uses of computer in MIS.	5
C	What is rational decision? What are its types? Explain.	5
D	What are the attributes of information? Explain.	5

2	A	List & explain organization behavioral factors.	8
	B	Describe Matrix model of an organization structure. Compare it with Functional Organization.	6
	C	Write a short note on Spiral model.	6

3	A	Explain the principles of operational management.	8
	B	What is system control? Explain the concept of control mechanism.	6
	C	Write a short note on data processing system.	6

4	A	What are the steps of Transaction Processing in information system application?	8
	B	What are the contents of IT implementation Plan? Explain.	6
	C	Explain the scope of economic environment.	6

5	A	What are the characteristics of programming languages? Explain.	8
	B	What are the functions of manager? Explain.	6
	C	Explain Product Strategy.	6

6	A	What are the sources of collecting data? Explain.	8
	B	"The choice of IT is a strategic decision but not a financial decision." Explain	6
	C	What is system engineering? Explain.	6

7	A	Explain the managerial function planning & control.	8
	B	How will you avoid misusing the information?	6
	C	Short note on project model	6

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(3 Hours)   **[Total Marks: 100]**

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(4) Answers to the **same question** must be **written together**.
(5) Numbers to the **right** indicate **marks**.
(6) Draw **neat labeled diagrams** wherever **necessary**.
(7) Use of **Non-programmable** calculators is **allowed**.

1		**Write short notes on:**	**5**
	A	Business Process Reengineering	
	B	Enterprise Resource Planning	**5**
	C	Executive Information Systems	**5**
	D	Decision Support Systems	**5**

2 A Explain the purpose of the project quality plan? Explain the quality elements that must be included in the Project Quality Plan.   **8**

B What is the sequence of problem solving sequence for TQM process improvement? Explain.   **6**

C Write a short note on change management.   **6**

3 A Explain the process reengineering life cycle in detail.   **8**

B Explain the different activities involved in project management.   **6**

C Enumerate the seven principles of reengineering.   **6**

4 A How is BPR implemented? What are the attributes we may look for while selecting a BPR software?   **8**

B Explain in detail the process of Project budgeting.   **6**

C What are the principles of TQM? Explain.   **6**

5 A Explain in detail the project development life cycle.   **8**

B What are the difficulties and risks in BPR? Explain.   **6**

C What are the aspects that must be managed as a part of project scope? Explain.   **6**

6 A Enumerate the nine key elements to evaluate the project readiness assessment. Prepare a brief questionnaire for each element.   **8**

B How should the project team be selected? Who should the team be composed of? What should be the size of the team? What the key roles that must be assigned to the team members? Explain.   **6**

C Explain the role of project manager.   **6**

7 A Enumerate and explain the steps to Total Quality Management.   **8**

B Design and explain a template for project planning.   **6**

C Explain the breakthrough reengineering model.   **6**

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