

Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3147[S-1003]

[2037]

M.Sc.(IT) (Semester - 1st)

N/W TECH & OS (MSC-IT-102)(O)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Write all the three standards defined by the ISO.
- b) What is peer to peer process?
- c) Differentiate between bit interval and period.
- d) Categorize the four basic topologies in terms of line configuration.
- e) Explain the concept of logical Token ring, how does token pass from one node to another?
- f) What is the difference between bit rate and baud rate?
- g) Differentiate between TCP/IP model with OSI Model.
- h) When the process is called synchronized & Un-synchronized?
- i) Which states of the process lead to the termination?
- j) Differentiate between N-step SCAN and FSCAN.
- k) Compare single relocatable portion & multiple fixed portions.
- l) What are the preventions measures taken for successful system?
- m) Explain the concept of transaction atomicity.
- n) What is the principal advantage to building line-editing capabilities into the operation system as opposed to leave it to the applications?
- o) If the average seek time for the disk is 9ms, what is the average time to read a sector.

P.T.O.

Section - B

(9 × 5 = 45)

- Q2)** Compare the two methods of serial transmission. Discuss the advantages and disadvantages of each.
- Q3)** An eight bit byte with binary value 10101111 is to be encoded using an even parity hamming code. What is the binary value after encoding?
- Q4)** Explain the function of following devices and on which layer each device work. Repeaters, hubs, Bridges, Switches, Router and gateways.
- Q5)** Compare & describe TCP and UDP protocols.
- Q6)** Which are the policies that affects congestion in data link, network, & transport layer.
- Q7)** Draw a hybrid topology with a ring backbone and two bus networks.
- Q8)** Explain what is the relation between Time Sharing, Multitasking and Multiprogramming.
- Q9)** Write and compare contiguous and non-contiguous allocation.
- Q10)** What is difference between internal and external fragmentation? Describe the methods to reduce the fragmentation up to minimum extent.
- Q11)** Suppose the following processes arrive for execution at the times indicated. Each process will run the listed amount of time. (use nonpreemptive scheduling)
- | <u>Process</u> | <u>Arrival time</u> | <u>Burst Time</u> |
|----------------|---------------------|-------------------|
| P1 | 0.0 | 8 |
| P2 | 0.4 | 4 |
| P3 | 1.0 | 1 |
- What is the average turnaround time for these processes with the FCFS scheduling algorithm?
- Q12)** Consider the logical address space of eight pages of 1024 words each, mapped onto a physical memory of 32 frames: (a) How many bits are there in the logical.
- Q13)** Differentiate between port & memory-mapped I/O.

Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 03

J-3149[S-1005]

[2037]

M.Sc.(IT) (Semester - 1st)

SOFTWARE ENGINEERING & RDBMS DEVELOPMENT

WITH ORACLE (M.Sc.(IT)-104(O))

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Define and contrast data and information.
- b) Define the following relation terms : Primary key, Index, & Domain.
- c) Explain the types of relationship used in relational model.
- d) How can we search a particular range of data to view?
- e) Explain the difference between DDL and DML.
- f) What are the SQL data types?
- g) List all data types used in PL/SQL.
- h) What special operators are used in SQL?
- i) How can we display the output in PL/SQL.
- j) Make a subquery to set all customers discount to the overall average for all customers.
- k) Write security issues of SQL.
- l) Differentiate between inner join and outer join. Show with example.
- m) What is the importance of views and sequences?
- n) Create a local function to return the square of the number if number is positive else return an error code 100.
- o) What are the applications where we can use statement level triggers?

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)** What are the different types of databases and users? Discuss the main activities of each.
- Q3)** Describe the two alternatives for specifying structural constraints on relationship types. What are the Advantages & Disadvantages of each.
- Q4)** What are the integrity constraints in Relational Model? Explain each.
- Q5)** Consider the following relations for a database that keeps track of business trips of salespersons in a sales office:
SALESPERSON (ssn, name, Start_year, Dept_No)
TRIP (ssn, From_City, To_City, Departure_Date, Return_Date, Trip_ID)
EXPENSE (Trip_ID, Account#, Amount)
Specify the foreign keys for the above schema, stating any assumption you make. Then specify the following queries in SQL.
- (a) Give the details for the trips that exceeded \$2000 in expenses.
(b) Print the SSN of salesman who took trip to “Honolulu”.
- Q6)** Differentiate between trigger & stored procedures.
- Q7)** Discuss Insertion, Deletion & Modification anomalies. Why are they considered bad? Illustrate with example.
- Q8)** Consider the following relational database. Give an expression in SQL for each of the following queries :
- Employee (employee-name, street, city)
Works (employee-name, company-name, salary)
Company (company-name, city)
Manages (employee-name, manager-name)
- i) Find all the employees who live in the same city as company for which they work.
ii) Find the company that has the smallest payroll.

Q9) Write an SQL trigger to carry out the following action : On **delete** of an account, for each owner of the account, check if the owner has any remaining accounts, and if she does not, delete her from the *depositor* relation.

Q10) Explain the types of operators used in SQL with example.

Q11) What is the use of GRANT and REVOKE command. Give an example to show the syntax of these command.

Q12) What type of data is placed in the BEGIN section of Generic PL/SQL block.

Q13) What are the reasons that why good databases should contain views.

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Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3096[S-96]

[2037]

B.Sc. (IT) / M.Sc.IT(Semester - 2nd/5th)

RDBMS-II (MSI - 202/B.Sc.IT - 502)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 x 2 = 30)

- a) Mark the candidate keys in the relations of your choice.
- b) What is meant by functional dependency?
- c) Give an example of one-to-one relationship.
- d) What is the advantage of defining *view*?
- e) Illustrate a equi Join operation.
- f) Give two advantages of indexes.
- g) Give the general structure of PL/SQL procedure.
- h) Give two examples of user internal exceptions.
- i) What are sequences used for?
- j) How is a trigger different from procedure?
- k) Why do we use varying arrays?
- l) Differentiate between system and object previliges.
- m) What is a schema?
- n) How do we use implicit cursors?
- o) What is a package?

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)* Discuss database system architecture.
- Q3)* What are the data anomalies in 1NF & 3NF.
- Q4)* What are the advantages of normalized ER-Model?
- Q5)* What are the different types of data constraints?
- Q6)* Explain range searching and patterns searching.
- Q7)* Differentiate between subquery and correlated query.
- Q8)* How are indexed views created?
- Q9)* What are the different control structures supported in PL/SQL?
- Q10)* What are the different types of cursors available in PL/SQL?
- Q11)* Give examples of
- (a) Statement trigger.
 - (b) Before trigger.
- Q12)* What is meant by user defined data type? When do we need it?
- Q13)* How can an administrator grant/revoke previliges?



Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3146[S-1002]

[2037]

M.Sc.(IT) (Semester - 2nd)

S/W ENGINEERING & PROJECT MANAGEMENT (M.Sc.(IT)-203)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Differentiate software process model & a software process.
- b) Write the advantages & disadvantages of waterfall model.
- c) Explain *prototyping*.
- d) Differentiate between software life cycle model & a process model.
- e) What are the key element for successful project?
- f) Explain the steps to count function point?
- g) What are generic models and why these are used?
- h) Performance is an important consideration during planning. Discuss.
- i) Write all the Design notations used for designing.
- j) What is module level concept Design procedure.
- k) Write concepts of coupling & s/w portability related.
- l) What is an automated static analysis?
- m) Which are two distinct type of testing in software process?
- n) How do OOD and structural design differ?
- o) Which is stronger testing: Data Flow testing and path testing? Justify.

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)** Assume a flood system & try to draw a block diagram of a system & should identify the main sub-system & links between them.
- Q3)** Describe the difference between process and project matrices in your own words.
- Q4)** Use the COCOMO model to estimate the home security system. Assume that the basic model is applicable.
- Q5)** Describe the main activities in the software design processes and the outputs of these activities.
- Q6)** What are the relative advantage of using either the LOC or the function point metric to measure the size of a software product?
- Q7)** Discuss following : Cost-Schedule-Milestone graph; Earned value methods & Unit development folder.
- Q8)** Explain the Components of SRS which are used for requirement.
- Q9)** Write about few well established function oriented software design techniques.
- Q10)** Compare between bottom up and top-down testing strategies.
- Q11)** Discuss & suggest how black box and structural testing can be used together in the defect testing process.
- Q12)** What is the difference between the software design methodologies based on functional abstraction and those based on data abstraction? Name at least one popular design technique based on each of these two software design paradigms.
- Q13)** Discuss following points regarding metrics: Cyclomatic complexity, Data binding, Cohesion Metric.

Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3097[S-97]

[2037]

M.Sc. (IT) (Semester - 2nd)

**DEV. DESKTOP & DATABASE APPLICATIONS WITH
VISUAL BASIC PROGRAMMING (M.Sc.(IT) - 204/201)**

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

(15 x 2 = 30)

Q1)

- a) What is the advantage of creating a project in Visual Basic?
- b) Give any four examples of library functions?
- c) What is *with block* used for?
- d) What are pop-up menus?
- e) What is meant by break points?
- f) What do we call a scroll bar?
- g) When do we use dynamic arrays?
- h) Give any two examples of methods that can be added to a class module.
- i) What is meant by COM?
- j) What do you understand by registering ActiveX Component?
- k) When will you create a DLL?
- l) What is a database?
- m) What are reports?
- n) What are the types of cursors?
- o) Give an example where searching and sorting both are involved.

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)** Discuss the Features of Visual Basic Environment.
- Q3)** What are the branching statements in Visual Basic?
- Q4)** What can you do with time events and how?
- Q5)** Explain menu controls with the examples.
- Q6)** How will you debug a project in Visual Basic?
- Q7)** Write Visual Basic code to accept a string only in lower case and display it by changing its alternate characters to upper case.
- Q8)** What are the basic object oriented principles?
- Q9)** What are the types of Active X Components available in Visual Basic?
- Q10)** Compare the DLL and EXE Active X Components.
- Q11)** How will you select a record in a database through Visual Basic?
- Q12)** How will you play a sound file using Visual Basic?
- Q13)** What are the different ADO data controls?



Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3098[S-98]

[2037]

M.Sc. (IT) (Semester - 3rd)

C # WITH . NET (M.Sc. (IT) - 301)

PROGRAMMING IN C-SHARP (M.Sc. (IT) - 303)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

(15 x 2 = 30)

Q1)

- a) What is .NET framework?
- b) Give the syntax of main function in C #.
- c) What is unboxing?
- d) What is meant by type conversion?
- e) Give an example using? : operator.
- f) Give the syntax of *switch* statement.
- g) What is a virtual function?
- h) When do we use variable-size arrays?
- i) Give an example of a regular expression?
- j) Give any two differences between class and struct.
- k) What is *this* reference?
- l) What is multiple inheritance?
- m) What is polymorphism?
- n) What is meant by overriding?
- o) Why do we use console class?

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)** What are the characteristics of a good abstraction?
- Q3)** State the features of C #.
- Q4)** Give an example using reference types in C #?
- Q5)** Give operator precedence and associativity of C #.
- Q6)** When will you use *empty* statement?
- Q7)** Write a program to count the upper case characters in a text ending with #.
- Q8)** Write a program to convert a two dimensional matrix into one dimensional row major matrix.
- Q9)** Write a program to illustrate multilevel inheritance with virtual methods.
- Q10)** Write a program to illustrate overloading of the unary operator ++.
- Q11)** What are the situations when delegates are preferred?
- Q12)** What are different numeric formatting possible in C #?
- Q13)** Give an example illustrating use of checked and unchecked operators.



Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3150[S-1006]

[2037]

M.Sc. (IT) (Semester - 3rd)

ENTERPRISE JAVA PROGRAMMING (M.Sc.-IT - 302(0))

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Which are the two groups of the java programming to understand Javabeans architecture.
- b) What is Properties windows & Composition windows.
- c) Give properties of ImageBean 1 beans.
- d) Write the advantage of java beans.
- e) Write the five classes of **Reflection API**.
- f) How you can call methods with the reflection.
- g) Which interface must all JavaBeans implements.
- h) For the JavaBean class named A, What would be the name of its Associated BeanInfo class?
- i) Which class can be used as the basis for supporting bound properties in a JavaBean?
- j) Which are the criteria that a customizer class must meet.
- k) What is use of BeanContext API.
- l) What is role of persistence in Beans.
- m) If a JavaBean has a property called X with type T, What is the possible accessor methods for that property in the absence of any other information?

P.T.O.

- n) What class can be used to provide a basic editor for JavaBean property with values that must be chosen from a list.
- o) What is GUI event-handling mechanism.

Section - B

(9 x 5 = 45)

- Q2)** What are the elements of a JavaBean interface.
- Q3)** Create a JavaBeans class. Using *SUN* BeanBox.
- Q4)** Which are the properties under which *ImageBean 1* bean can be bind with another beans.
- Q5)** How we can create & use a custom event type.
- Q6)** Write the steps to Load ImageBean2 into the BDK BeanBox.
- Q7)** Which are the additional propertie's property editors BeanBox provides.
- Q8)** How we are creating a JavaBean class with a BeanInfo Class.
- Q9)** What are Bound properties? To whom the bound properties are useful & explain its implementation.
- Q10)** Write the role of Information class for the ImageBean3 class.
- Q11)** Discuss following features : reflection & Introspection.
- Q12)** Write advantage of Component programming using example.
- Q13)** How the mechanism of event handlers is different from the exception handler.

Roll No.....

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3814

[2037]

M.Sc.(IT) (Semester - 3rd)

ADVANCED WEB DEVELOPMENT (M.Sc.(IT) - 303/301)

WEB APPLICATION DEVELOPMENT

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Explain the Active server page.
- b) Write the ASP Process.
- c) Describe are variant variables? What does it mean to declare a variable.
- d) Illustrate the concept of typecasting variables.
- e) Explain about the ASP Object.
- f) What do you understand by the logic of Event.
- g) Compare between Object Context Object & ASP Error Object.
- h) Which are the advance form techniques.
- i) What is Environmental variables. How we can Access them.
- j) Write pitfalls of session variables.
- k) Give reason why database is used in ASP.
- l) How data can be inserted, updated & deleted in database records.
- m) How SQL can be executing using ASP & ADO.
- n) Differentiate between root element & empty element.
- o) What are the formatting objects.

P.T.O.

Section - B

(9 × 5 = 45)

- Q2)* How ASP differs from Client-Side Scripting Technologies. Discuss with comparison.
- Q3)* Write the steps for Dissecting the first ASP Script.
- Q4)* What is control structures. Explain the types of control statement using example.
- Q5)* Write about following function: Formatting function. Math function, data function & string function.
- Q6)* What is object? Explain the building blocks of objects.
- Q7)* What is the Response Object? How we dissecting the Response object. Explain.
- Q8)* What are cookies? How to read cookies using the request object.
- Q9)* Differentiate between Session Object & Application Object.
- Q10)* Which are the fatal & nonfatal bugs arises while debugging ASP Scripts.
- Q11)* How we can work with database using ASP.
- Q12)* Explain the steps to crating a valid document from a DTD.
- Q13)* Write the properties of CSS. How it is embedded in XML.



Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3145[S-1001]

[2037]

M.Sc.(IT) (Semester - 4th)

WINDOWS 2000 DIRECTORY SERVICES (MSC-IT - 403(O))

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 x 2 = 30)

- a) How does active directory work as central login authority?
- b) List the disadvantages of Directory access protocol.
- c) What are the reasons to use groups?
- d) What is a network from the viewpoint of users and groups?
- e) What is distribution group?
- f) What items need to consider when you delegate?
- g) What is group policy object?
- h) How user environment & security is managed.
- i) How we are deploying software through group policy.
- j) What is the basic idea behind the synchronization?
- k) Write about ADSI editor and LDP.
- l) How we are creating client in window 95 and 98?
- m) Why we deactivating and reactivating classes and attributes?
- n) How do we scripting in a active directory environment.
- o) Write the steps to configure window 2000 for Net Ware.

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)* Explain Change management and application management of active directory.
- Q3)* What are active directory objects? Describe attributes of each object.
- Q4)* Discuss about the naming mechanism of active directory. How is it similar to mechanism of DNS.
- Q5)* Differentiate between predefined accounts and administrator accounts in window 2000.
- Q6)* Describe with an example how we can create a new group.
- Q7)* Write the procedure to delegate the control through the organizational unit.
- Q8)* How group policy is implemented. Write the steps.
- Q9)* How relationship is trusted within & between Windows 2000 domain & NT 4.0 domain.
- Q10)* What is the procedure to share a Net Ware printer with Microsoft client?
- Q11)* Write the steps to add ADSI editor to Microsoft management console.
- Q12)* Write the steps for creating a new class from the active directory schema application.
- Q13)* Explain the steps to create a gateway to Netware resources.

Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

J-3148[S-1004]

[2037]

M.Sc.(IT) (Semester - 4th)

WINDOWS 2000 N/W INFRASTRUCTURE (M.Sc.IT-404)(O)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) Write the IP addressing Classes.
- b) Give overview of IP Routing.
- c) When Windows 2000 server operating as a DHCP relay agent.
- d) Write the Global Scope Properties.
- e) How we configuring DNS options for DHCP.
- f) Which are top-level original Domain.
- g) Explain the Domain Records & Zone files.
- h) Differentiate between Static & dynamic IP Process.
- i) Compare between support scope & multiscope.
- j) Write the function of Microsoft management console.
- k) How do we obtain IP address automatically?
- l) How TCP/IP filtering dialog box controlling the traffic?
- m) Which are the problem caused by the unauthorized DHCP Server.
- n) Describe the DHCP standard options.
- o) Explain the term LMHost types.

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)* How we getting IP Addresses. What is the role of Gateways & routing.
- Q3)* Explain the steps of configuring Windows 2000 clients & servers.
- Q4)* Explain the working of Windows 2000 DHCP Server.
- Q5)* List out the steps required for configuring the Reservation.
- Q6)* What is Multicast Scopes. How it is created.
- Q7)* List out Windows 2000 DNS Resource records.
- Q8)* Write & compare between reservation & replication.
- Q9)* Discuss the hardware configurations and setup options for installing Windows 2000 Server.
- Q10)* Discuss in details Microsoft management console tools (MMC).
- Q11)* Write the benefits provided by DHCP in Windows 2000.
- Q12)* How we are Implementing & managing DNS server in a network.
- Q13)* Explain in detail about WINS. Write steps to installing WINS server & client.

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