SEAT No._____

No. of Printed Pages : 02

[41]

SARDAR PATEL UNIVERSITY
B.Sc. (CA&IT) Integrated (Reg.) / M.Sc. IT Integrated (NC)
Semester – 3
Friday, Date: 3rd November 2017
Session: Evening   Time: 02:00 PM to 05:00 PM

Subject Code: PS03CIIT01
Subject Title: OPERATING SYSTEMS – I

Q1.   **Multiple Choice Questions (Attempt All)**   [10]

1   __ is a program that acts as an intermediary between a user of a computer and the computer hardware.

  [A] User System   [B] Real System
  [C] Operating System   [D] Virtual System

2   ____ is a program in execution.

  [A] Process   [B] Kernel
  [C] File   [D] Directory

3   __ system guarantees that critical tasks complete on time.

  [A] Time Sharing   [B] Hard Real Time
  [C] Soft Real Time   [D] Multiuser

4   PCB stands for __.

  [A] Program Control Block   [B] Process Control Block
  [C] Process Central Block   [D] Program Central Block

5   __ is the sum of the periods spent waiting in the ready queue.

  [A] Waiting time   [B] Turnaround Time
  [C] Throughput   [D] Response Time

6   __ scheduling algorithm is designed especially for time sharing systems.

  [A] SJF   [B] Round Robin
  [C] FCFS   [D] Priority

7   ____ is a solution of the bounded buffer.

  [A] Virtual Memory   [B] Shared Memory
  [C] Data Consistency   [D] None of these

8   __ is a set of methods for ensuring that atleast one of the necessary conditions cannot hold

  [A] Deadlock Avoidance   [B] Deadlock Prevention
  [C] Deadlock Resistance [D] None of these

9   Who is the controller at the computer end of the bus?

  [A] Disk Controller   [B] Host Controller
  [C] Driver Controller   [D] None of these

10   __ refers to an interface design for connecting peripheral devices.

  [A] Transfer rate   [B] Firewire
  [C] Latency time   [D] Controller

Q2.   **Answer the following short questions (Attempt any TEN)**   [20]

1   List functions of OS.
2   Define Trap.
3   Explain user mode and kernel mode of OS.
4   Draw process state diagram.
5   List different types of CPU registers.
6   What is I/O bound process and CPU bound process?
7   State reasons for interprocess communication.

8	Explain race condition for concurrent processes.	
9	Briefly explain semaphore.	
10	What are controllers? List types of controllers.	
11	Differentiate: constant linear velocity and constant angular velocity	
12	What is disk bandwidth? How can it be improved?	

Q3.	Explain Time Sharing Operating System.	[10]
	OR	
Q3.	Explain the concept of Virtual Machine.	[10]

Q4.a.	Explain SJF scheduling with example.	[6]
b.	Write a note on PCB.	[4]
	OR	
Q4.a.	Explain Round Robin scheduling with example.	[6]
b.	Explain the concept of process scheduling through queuing diagram.	[4]

Q5.a.	Explain Peterson's solution to the critical section problem.	[5]
b.	Explain necessary conditions for deadlock.	[5]
	OR	
Q5.a.	Write a note on semaphores.	[5]
b.	Write a note on deadlock prevention.	[5]

Q6.a.	Write a note on magnetic disk.	[5]
b.	Explain SSTF disk scheduling algorithm with example.	[5]
	OR	
Q6.a.	What is RAID? Explain any two levels of RAID.	[5]
b.	Explain CSCAN disk scheduling algorithm with example.	[5]

SARDAR PATEL UNIVERSITY
External Examination (CBCS)
M. Sc. - Information Technology (Integrated)
IIIrd Semester (CBCS)
PS03CIIT02: Advanced Data and File Structure
7th November, Tuesday - 2017

Time : 02:00 pm to 5:00 pm   Total Marks :70

Q-1   Select an appropriate option.   10

1.   An array is a _____ data structure.
     (a) Unordered   (b) Non-composite   (c) Linear   (d) Heterogeneous

2.   The number of sub tree of a node in a tree is called_____ of a node.
     (a) Degree   (b) Level   (c) Height   (d) Index.

3.   _____ means a link between parent and its child.
     (a) Degree   (b) Leaf   (c) Height   (d) Branch

4.   A binary tree has at most _____child.
     (a) Two   (b) Three   (c) One   (d) None of these

5.   If a graph does not have any cycle then it is called _____.
     (a) Circle graph   (b) Self loop   (c) Acyclic graph   (d) Cyclic graph

6.   A node whose out degree is 0 is called _____.
     (a) Source node   (b) Self loop   (c) Sink node   (d) Single node

7.   _____ is the operation of arranging the records of a table into some
     sequential order according to an ordering criterion.
     (a) Searching   (b) Inserting   (c) Sorting   (d) Updating

8.   The process of finding the data from its data structure is called _____.
     (a) Searching   (b) Deletion   (c) Sorting   (d) None of these

9.   _____ is a unit of meaningful information about an entity.
     (a) Record   (b) Entity   (c) Item   (d) None of these

10. The collection of files is known as _____.
     (a) Data file   (b) File   (c) Database   (d) None of these

Q-2   Answer the following questions. (Attempt any **TEN**)   20

1.   What is the upper bound and lower bound of an Array?
2.   Define root and leaf of a Tree.
3.   List 2 applications of an Array.
4.   Define parallel edges of a Graph.

5. What is mixed Graph?
6. Draw the Binary Tree for (A-B)+C*(E/F)
7. Difference between Searching and Sorting.
8. List the applications of Searching.
9. What do you mean by file organization? Why it is Required?
10. List the applications of Sorting.
11. Define Bucket Capacity.
12. Define cross reference table with example.

Q-3
(a) Explain 2-D array with declaration and initialization.   5
(b) Explain Sparse Matrix in detail.   5

OR

Q-3
(a) Explain 1-D array with declaration and initialization.   5
(b) Explain in detail applications of tree.   5

Q-4
(a) What are the types of Traversal of Binary Tree? Explain any two with an   5
    example.
(b) Define Graph. Explain Directed graph, Undirected graph, Connected graph   5
    and Weekly connected graph with suitable example.

OR

Q-4
(a) Explain the representation of Binary Tree.   5
(b) Explain the insertion of a node in a Binary with an example.   5

Q-5 What is Searching? List and explain Searching Techniques with algorithms. 10

OR

Q-5 What is Sorting? List Sorting Techniques and explain any one of them with 10
     algorithm.

Q-6
(a) Write a short note on Multiple Buffering.   5
(b) Write a detail note on processing of Index Sequential file.   5

OR

Q-6
(a) Write a short note on Single Buffering.   5
(b) Write a detail note on processing of Direct file.   5

(148)

-No. of Printed Pages:02

SARDAR PATEL UNIVERSITY
M.Sc.IT (INTEGRATED) - IIIrd Semester
External Examination(NC)-2017
Subject Code: PS03CIIT03
Subject: Object Oriented Programming and C++
9th November,2017

Time: 2:00 P.M. to 5:00 P.M.   Maximum Marks: 70

Q.1   Multiple Choice Questions.   10

1. A _____ is a collection of objects of similar type.
    A. Data   B. Object
    C. Class   D. Function
2. _____ means ability to take more than one form.
    A. Inheritance   B. Polymorphism
    C. Data hiding   D. Encapsulation
3. _____ operator is the same as "scanf( )" function used in C.
    A. cin   B. cout
    C. scanf   D. println
4. _____ constructor contains an object as argument.
    A. Default   B. Copy
    C. Parameterized   D. None of Above
5. _____ access specifier is default in class definition.
    A. private   B. protected
    C. public   D. None of Above
6. A pure virtual function is equal to ____.
    A. zero   B. -1
    C. 1   D. NULL
7. ___ is a non-member function which can access private & protected
    members of some other class.
    A. friend function   B. virtual function
    C. operator function   D. pure virtual function
8. By default, main( ) in C++ returns ____.
    A. void   B. int
    C. char   D. char*
9. Which one of the following operators cannot be overloaded?
    A. the function call ( )   B. +=
    C. >>   D. ?:
10. Which of the following declarations are illegal?
    A. Void *ptr   B. Char *str1 = "xyz"
    C. Char str2 = "abc"   D. Const *int p1   P.T.O

Q.2 Answer the following questions in short. **(Any 10)**   **20**

    1) List out types of operator available in C++.

    2) Write down difference between Objects and Classes.

    3) Define constructor and write characteristics of constructor.

    4) Explain cout in C++ with example.

    5) What do you mean by arrays of string? Give example.

    6) Discuss default arguments briefly.

    7) What is the difference between private & protected members of the class?
    8) What is a virtual base-class? What is the use of it?

    9) What is this pointer?

    10) What is the difference between opening a file with constructor function and with open()?
    11) Can we overload destructor? Explain your answer.

    12) What are input and output stream?

Q.3(A) Explain features (characteristics) of OOP in detail.   **10**
<div align="center">OR</div>
Q.3(A) What is C++? Explain structure of C++.   **10**

Q.4(A) Explain declaration and initialization of two dimensional array with example.   **06**

   (B) Explain the methods of defining class members with an example.   **04**

<div align="center">OR</div>

Q.4(A) How you can create arrays of objects? Give an example and explain it.   **06**

   (B) Explain constructor overloading with example.   **04**

Q.5(A) Define inheritance. List all types of inheritance. Discuss the syntax of defining base-class & derived class.   **06**

   (B) Explain the concept of friend function with suitable example.   **04**

<div align="center">OR</div>
Q.5(A) Explain multiple & multilevel inheritance with suitable example.   **06**
   (B) Discuss inline functions with appropriate example.   **04**

Q.6(A) Explain binary operator overloading using friend function. Give example.   **05**
   (B) Explain read(),write(),seek(),close()   **05**
<div align="center">OR</div>
Q.6(A) What is file mode? Describe the various file mode operations available.   **05**
   (B) Explain unary operator overloading with example.   **05**
<div align="center">*****</div>

SARDAR PATEL UNIVERSITY
Bsc(CA&IT)(Inegrated) Examination, 3rd Semester
Saturday, 11th November, 2017.
Time: 02:00 P.M to 5:00 P.M
Subject Code: PS03CIIT04
Subject :-Relational Database Management System-I

Total Marks: 70

Q.1　Multiple Choice Questions :　　　　　　　　　　　**[10]**

1. How many conceptual schemes are available per database?

   A. One　　　　　　　　　　　　B. Two
   C. Three　　　　　　　　　　　 D. Four

2. Which integrity constrains states that no primary key value can be null.
   A. Entity　　　　　　　　　　　B. Referential
   C. Domain　　　　　　　　　　 D. Simple

3. Which of the following is not three-schema architecture for a database?
   A. Hierarchical　　　　　　　　B. Relational
   C. Physical　　　　　　　　　　D. Network

4. The ＿＿＿＿＿ clause imposes a condition of the group by clause.
   A. GroupBy　　　　　　　　　　B. SubQuery
   C. Having　　　　　　　　　　　D. where

5. ＿＿＿＿＿ command is use to change a content of table.
   A. Update　　　　　　　　　　　B. Change
   C. Alter　　　　　　　　　　　　D. Modify

6. ＿＿＿＿＿ SQL PLUS command is use to execute a command file.
   A.　Connect　　　　　　　　　　B.　Save
   C.　start　　　　　　　　　　　 D.　spool

7. Business rules, which are enforced on data being stored in a table, are called ＿＿＿＿.

   A.　NULL　　　　　　　　　　　 B.　Unique
   C.　Constraints　　　　　　　　 D.　Protocol

8. ＿＿＿＿ represents relationships between tables.

   A.　ForeignKey　　　　　　　　 B.　Unique
   C.　Primary Key　　　　　　　　D.　Default

9. Sub query is also termed as ＿＿＿＿＿ query
   A.　Nested　　　　　　　　　　　B.　view
   C.　index　　　　　　　　　　　 D.　joins

10. The ＿＿＿＿＿ statement provides various types of access to database object.
    A.　Revoke　　　　　　　　　　 B. Commit
    C.　Having　　　　　　　　　　 D. Grant

(P.T.O.)

Q.2 Explain any Ten   [20]

      1.   Explain Rollback statement.
      2.   Write Syntax of grant statement.
      3.   What is the use of Ttitle and Btitle function in sql Report?
      4.   Explain TAB table.
      5.   Explain concept of DUAL table.
      6.   Explain delete statement in brief.
      7.   List the diff. types of joins.
      8.   List all the Operators used in SQL.
      9.   Explain distinct clause in brief.
     10.   Explain use of OrderBy clause.
     11.   List down Integrity Constraints.
     12.   Draw the three level architecture of DBMS.

Q.3 **A.**   Explain Different CODD Rules in Details.   [6]
       B.   Explain Integrity Constraints in detail.   [4]
                            OR
Q.3 **A.**   Explain Three Level Schema architecture for DBMS.   [6]
       B.   What is ER modeling ? explain in detail with diagrams?   [4]

Q.4 **A.**   Explain update statement and Create statement with its syntax and example. [6]
       B.   Explain various ways to change structure of a table using alter statement. [4]

                            OR
Q.4 **A.**   Explain various ways to insert records in a table.   [6]
       B.   List various basic data types used in oracle. Explain in detail.   [4]

Q.5   Define Primary key concept and Foreign Key with appropriate illustration [10]
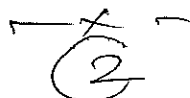
                            OR
Q.5   List all Aggregate functions available in oracle and explain all of them
         with appropriate syntax and example.   [10]

Q.6 **A.**   What is view? Why it is created, explain it syntax & example.   [06]
       B.   List different types of join? Explain any one in detail.   [04]

                            OR

Q.6 **A.**   What is use of sequences? Explain creating & dropping it with example. [06]
       B.   What is index? Explain creation of simple index.   [04]

SARDAR PATEL UNIVERSITY
Bsc(CA&IT)(Inegrated) Examination, 3rd Semester
PS03EIIT02 : RDBMS for small scale organization

Date: 14/11/2017   Time: 02:00pm to 04:00pm   Max.Marks: 70
Tuesday

Q.1   Multiple choice of Question   10

[1] One of the RDBMS Package is ………
   a. Excel   b. PowerPoint
   c. Access   d. Word

[2] RDBMS stands for……….
   a. Relational Database Management System
   b. Relation Data Module System
   c. Right Data Base Management System
   d. None of the above

[3] A database that contains tables linked by common fields is
   called a _____
   a. Centralized database   b. Flat file database
   c. Relational database   d. None of above

[4] What is the maximum length of a Memo field can be?
   a. 512 characters   b. 65536 characters
   c. 32767 characters   d. 255 characters.

[5] Which of the following is NOT a type of Microsoft Access
   database object?
   a. Queries   b. Workbooks
   c. Forms   d. Tables

[6] The entity integrity rule requires that
   a. all primary key entries are unique.
   b. a part of the key may be null.
   c. foreign key values do not reference primary key values.
   d. duplicate object values are allowed.

[7] ____ is a general term synonymous with question, inquiry, or
   quiz.
   a. Table   b. Record   c. Report   d. Form

[8] _____ are used for viewing and entering data.
   a. Table   b. Record   c. Query   d. Form

[9] _____permission is required to Open a database, form, or report, or
   run a macro.
   a. Close   b. Read Design
   c. Open/Run   d. Modify Design

[10] _____ permission is required to Open a database for exclusive use.
   a. Close   b. Read Exclusive
   c. Open/Run   d. Modify Design

Q.2 Answer the following questions in short (Any 10): 20
[1] Explain steps to starting access and opening a database.
[2] How many methods are available to create table in access.
[3] What is RDBMS?
[4] Explain How to entering data in table.
[5] Explain editing and deleting records from tables.
[6] Explain Sorting records in detail.
[7] How do query works?
[8] How one can add / remove fields in query?
[9] How many methods to create report in access.
[10] What is macro?
[11] What is module?
[12] Why mailing labels are used?

Q.3 (A) Explain steps to create a table in design view. 5
(B) Explain Objects of access. 5

OR

Q.3 (A) Explain data types in access. 5
(B) Explain steps to create a table by entering data by entering 5
data in a datasheet.

Q.4 (A) Explain in detail Referential integrity 5
(B) Explain in detail types of relationships. 5

OR

Q.4 (A) Explain steps to define relationship between tables. 5
(B) What is Primary Key? Explain in detail. 5

Q.5 (A) Explain steps to create a query in design view. 5
(B) Explain AutoForm in detail. 5

OR

Q.5 Explain the following query. 10
1. create update 2. create delete 3. create cross-tab.

Q.6 Explain import and export facility in detail. 10

OR

Q.6 Explain in detail Database security and Database utilities. 10

— ✗ —

2

SARDAR PATEL UNIVERSITY

[48 79]   B.SC. (CA & IT) (INTEGRATED) & M.SC. IT (INTEGRATED) (NC)
Examination November-2017
PS03FIIT01 : Financial and Accounting Management

Date: 01/11/2017   Time: 02:00 to 05:00   Total Marks : 70

Q.1   Multiple choice questions: [10]

1.   "Art & Science of recording business transaction in a systematic & chronological order" is known as _____
     A. Book keeping   B. Accounting   C. Debiting   D. Crediting

2.   The amount which is not recovered from debtors is known as _____
     A. Solvent   B. Discount   C. income   D. Bad debts

3.   _____ is a book of account in which all financial transactions are recorded chronological for the first time.
     A. Book keeping   B. Journal   C. Accounting   D. Double entry

4.   Sales invoices are first entered in:
     A. The Sales Account   B. The Sales Book
     C. The Cash Book   D. The Purchases Book

5.   The_____will be added to the capital in the Balance sheet.
     A. Gross Profit   B. Net Profit   C. Loss Profit   D. None

6.   Which of the following item entered in the debit side of trading account
     A. Sales minus sales return   B. Closing Stock
     C. Opening stock   D. none of above

7.   Which of the following is known as financial assets?
     A. Shares   B. Debenture   C. A & B   D. None

8.   Financial management is concerned with _____ of the firm's financial resources.
     A. Production   B. planning and controlling
     C. Marketing   D. none of the above

9.   Which group of ratios measures a firm's ability to meet short-term obligations?
     A. Liquidity ratios   B. Debt ratios
     C. Profitability ratios   D. Activity ratios

10. If the Volume level increases 10%, total variable costs will
     A. remain the same   B. increase by more than 10%
     C. decrease by less than 10%   D. increase by10

Q.2 Write answer in short (Any Ten) [20]
1. Explain the term solvent and insolvent.
2. Define: Trial balance
3. What do you mean by Accounting?
4. What is Trading Accounts?
5. Define: Cash Book or Purchase Book or Sales Book..
6. Define depreciation.
7. Explain dividend decision.
8. List the important finance decisions or functions.
9. Explain management versus owners.
10. Write the meaning of operating leverage
11. Define CVP analysis.
12. Define total assets turnover ratio.

Q.3(a) Journalise the following transactions in the journal of Mr. Rajesh of July, 2010. [6]
Jul 1. Mr. Rajesh starts his business with a Capital of Rs. 10,000.
Jul 2. Machinery Purchase Rs. 300.
Jul 3. Goods Purchase from Ram in cash Rs. 5000.
Jul 4. Goods Purchased from Jay on Credit Rs. 2200.
Jul 5. Cash Sales Rs. 2000.
Jul 6. Goods Purchased from Jayesh on credit Rs. 1920.
Jul 7. Credit Sales to Hari Rs. 3200.
Jul 8. Paid Cartage Rs. 70.
Jul 9. Trade Expanses Paid Rs 200.
Jul 10. Rent Paid Rs. 150.
Jul 11. Sold Goods for cash Rs. 4000.
Jul 12. Insurance Premium Paid Rs. 30.
Jul 13. Paid Salary to a Clerk Rs. 325.
(b) Explain the term Accounting with its objectives. [4]

OR

Q.3(a) Journalise the following transactions in the journal of Mr. Adani for the Jan, 1999. [6]
Jan 1 Purchased goods Rs. 5000 for cash less 20% trade discount and 5% discount.
Jan 4 Received Rs. 1980 from vijay and allowed him Rs. 20 as discount.
Jan 6 Purchased goods from Bharat Rs. 5000.
Jan 8 Purchased plant from Mukesh for Rs. 5000 and paid Rs. 100 as cartage for brining the plant to the factory and another Rs. 200 installation charges.
Jan 12 Sold goods to Rahim on credit Rs. 600.
Jan 15 Rahim become an insolvent and could pay only half the amount in cash.
Jan 18 Sold goods to Ram for cash Rs. 1000.

Jan 20 Paid salary to Ratan Rs.2000.

Jan 21 Paid Anand Rs. 4800 in full settlement.

Jan 26 Interest received from Madhu Rs. 200.

Jan 28 Paid to Bablu interest on loan Rs. 500.

Jan 31 Sold Goods for cash Rs. 500.

Jan 31 Withdrew goods from business for personal use Rs. 200.

(b) Differentiate between Trade discount and Cash discount. [4]

Q.4(a) Prepare Two Column Cash Book from the following transactions: [5]

2006 .

July 1 Cash in hand 18,000, Cash at Bank 27,500

'' 3 Goods sold for cash 10,000

'' 6 Bought Goods by Cheque 16,000

'' 8 Cash deposited into Bank 20,000

'' 10 Paid Trade Expenses through Cheque 2,000

'' 12 Paid Audit Fee for Cash 1,000

'' 14 Cheque received from Garima and deposited into bank 4,700

'' 18 Withdrew from bank for personal use 2,000

'' 20 Purchased office machine by Cheque 5,000

'' 22 Wages paid 1,000

'' 26 Cash Sales 5,000

'' 28 Received Cheque from Mahesh 2,000

(b) What is contra entry? Explain with small example. [5]

OR

Q.4(a) Enter the following transactions in the Simple Cash Book of M/s Golden Traders: [5]

2006

April 1 Started Business with Cash 30,000

'' 2 Goods Purchased for Cash 10,000

'' 3 Furniture Purchased 1,000

'' 6 Goods Sold for Cash 7,000

'' 9 Cartage paid 200

'' 10 Postage 100

'' 12 Cash Sales 3,000

'' 14 Cash withdrawn for Personal use 2,000

'' 18 Deposited into Bank 10,000

'' 22 Goods purchased for Cash 13,000

'' 25 Wages paid 500

'' 27 Rent paid 3,000

'' 28 Cash Sales 2,000

'' 30 Commission received 500

(b) Write any three differences between 'Balance sheet' and 'Profit & Loss Account' [5]

Q.5(a) Discuss Investment decision and financing decision. [4]
   (b) Describe financial goal and firm's objectives. [6]

                            OR

Q.5(a) Explain dividend decision, liquidity decision. [4]
   (b) Write a short note on uses of ratio analysis. [6]

Q.6(a) Explain leverage ratio in detail. [5]
   (b) Explain Total Variable cost, Unit variable cost with graph. [5]

                            OR

Q.6(a) Explain profitability ratio in detail. [5]
   (b) Define breakeven point. how would you compute the BEP? [5]

——— X ———