

SEAT No. _____

[A-5]

SARDAR PATEL UNIVERSITY
Post Graduate Diploma in Computer Applications (PGDCA)
Semester – II External ATKT Examinations
DCA-201 Operating Systems
2nd November, 2017

Time: 10:00 a.m. to 1:00 p.m.

Max Marks: 70

Q1. Choose the most appropriate option for each question.

[8]

- i. _____ interrupt is generated by error conditions arising within user programs.
A) I/O
B) Timer
C) Hardware
D) Program
- ii. A _____ section contains program code.
A) Text
B) Stack
C) Data
D) None of these
- iii. The _____ counter indicates the address of the next instruction to be executed for this process.
A) I/O
B) Timer
C) Hardware
D) Program
- iv. The _____ register is now called a relocation register.
A) Stack
B) Base
C) Limit
D) None of these
- v. _____ presents a uniform device to access interface to I/ O subsystems.
A) Device Driver
B) Device Controller
C) Device Manager
D) None of these
- vi. _____ organizes and provide information for all the files in the system.
A) File
B) Directory
C) Both of the above
D) None of these
- vii. _____ is a series of code sections that the loader can bring into memory and execute.
A) Text
B) Object
C) Execute
D) None of these
- viii. _____ is not an example of consumable resource.
A) Main Memory
B) Secondary Memory
C) Processor
D) All of the above

Q2. Answer the following questions (Any Seven):

[14]

- a. What is a SPOOLING?
- b. Explain the bootstrapping.
- c. What is a context change?
- d. What Belady's anomaly?
- e. Explain Dynamic Linking.
- f. Define the following : 1) Text file 2) Object file
- g. What is a process?
- h. Define the following : 1) Port 2) Controller
- i. What is a Semaphore?

Q3. Answer the following questions:

- a. Write a short note on history of Operating system. [6]
- b. Explain different types of user interfaces. [6]

OR

- b. Write a short note on paging. [6]

Q4. Answer the following questions:

- a. Write a short note on Tharshing. [6]
- b. List and explain different scheduling criteria. [6]

OR

- b. Find average waiting time using FCFS scheduling algorithm. [6]

Process	Arrival Time	Burst Time (in ms)
P1	1	3
P2	3	10
P3	6	4
P4	7	5

Q5. Answer the following questions:

- a. Write a short note on registers of I/O port. [6]
- b. Explain a Tree-Structured Directory. [6]

OR

- b. Discuss Interprocess communication in brief. [6]

Q6. Answer the following questions:

- a. List and explain the conditions necessary for deadlock. [6]
- b. Write a short note on Sequential File Access. [6]

OR

- b. Discuss Block and Character devices in detail. [6]

□□□

Q2. Answer the following questions (Any Seven):

- a. Make the following conversion: $(170)_{10} = (?)_2$
- b. Define hamming code.
- c. Draw diagram for memory hierarchy.
- d. Differentiate between main memory and secondary memory.
- e. What is an interrupt?
- f. Draw and give truth table for AND gate with two inputs.
- g. Write truth table for: $AB + \overline{BC}$.
- h. Explain half adder in short.
- i. What is ring counter?

Q3. Answer the following questions:

- a. Explain simple computer with its diagram and functional units. [6]
- b. Explain octal and binary number systems. Also convert hexadecimal number $(FCA)_{16}$ to binary. [6]

OR

- b. Write a note on error detection and correction codes. [6]

Q4. Answer the following questions:

- a. Write a note on CPU organization. [6]
- b. Explain the concept of single five-stage pipeline. [6]

OR

- b. Discuss multi-computer along with its uses. [6]

Q5. Answer the following questions:

- a. Explain direct and immediate addressing modes. [6]
- b. Prove that (i) $\overline{A+B} = \overline{A} \cdot \overline{B}$ (ii) $\overline{A \cdot B} = \overline{A} + \overline{B}$ [6]

OR

- b. Explain XOR gate and NOR gate with their circuit diagram and truth table. [6]

Q6. Answer the following questions:

- a. What do you mean by combinatorial circuit? Explain decoders in detail. [6]
- b. Write a note on binary adder. [6]

OR

- b. What is latch? Explain SR latch in detail. [6]

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

SEMESTER – II External ATKT Examinations

PGDCA201 (Operating System)

16th November, 2017

Time: 10:00 am to 01:00 pm

Total Marks: 70

Marks
[08]

Q-1 Choose the most suitable option:

1. A Program in execution is known as _____.
(a) Process (b) Files
(c) Commands (d) None of these
2. What is the full form of GUI?
(a) Graphical User Interface (b) Graphics User Interchange
(c) Geographic User Interface (d) None of these
3. FIFO scheduling is _____.
(a) Preemptive Scheduling (b) Non Preemptive Scheduling
(c) Deadline Scheduling (d) Fair share scheduling
4. PCB = _____.
(a) Program Control Block (b) Process Control Block
(c) Process Communication Block (d) None of the above
5. What is the full form of UFD?
(a) Unique File Directory (b) User False Directory
(c) User File Device (d) User File Directory
6. The _____ register is used to read from the host to get inputs.
(a) Data-in (b) Data-out
(c) Data-I/O (d) None of the above
7. The panic key combination in UNIX is _____.
(a) CTRL-P (b) CTRL-F
(c) CTRL-X (d) CTRL-C
8. _____ state is a state that may allow deadlock
(a) Safe (b) Unsafe
(c) Deadlock (d) None of these

Q-2 Answer the following: [Any 7]

[14]

1. What is Operating System?
2. What is System Call? Explain in brief.
3. What is Process Life Cycle?
4. What is scheduling?
5. What is Memory Management?
6. List different memory management methods.
7. What is dynamic loading?
8. Define the following : 1) Bus 2) Device Driver
9. What is the meaning of deadlock Prevention?

- Q-3 Answer the following long questions:**
- [A] What is UNIX? Discuss evolution of it in details. [06]
[B] Write a short note on evolution of Operating System. [06]
- OR**
- [B] Explain Round Robin scheduling algorithm with example. [06]
- Q-4 Answer the following long questions:**
- [A] Discuss Process Management with its process life cycle. [06]
[B] What is scheduling? List all methods and explain any one method in details. [06]
- OR**
- [B] Discuss PCB in detail. [06]
- Q-5 Answer the following long questions:**
- [A] Write a short note on I/O Hardware. [06]
[B] List and explain different File attributes. [06]
- OR**
- [B] List and explain the steps involved in deadlock avoidance. [06]
- Q-6 Answer the following long questions:**
- [A] Write a short note on Two-level Directory structure. [06]
[B] Explain Resource allocation Graph in detail. [06]
- OR**
- [B] Write a short note on Application I/O Interface. [06]

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SARDAR PATEL UNIVERSITY
POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)PGDCA - 202 (Database Management Systems)6th November 2017

22

Time: 10:00 AM to 1:00 PM

Marks: 70

Q1. Select the Appropriate Answer of the following questions:**[8]**

1. DELETE FROM EMP; removes ____ rows from EMP table.
A. 1 B. 0 C. all D. None of given
2. _____ is a database object that holds user data.
A. FORM B. TABLE C. QUERY D. None of given
3. The _____ clause can be used in conjunction with the GROUP BY clause to impose a condition on it.
A. WHERE B. CHECK C. HAVING D. none of given
4. The _____ command is used to change or modify data values in a table.
A. ALTER TABLE B. UPDATE C. INSERT D. None of given
5. Oracle provides an object called _____ that can generate numeric values.
A. View B. Sequence C. Index D. None of given
6. The _____ may not return any value.
A. Procedure B. Function C. Built in Function D. None of given
7. The PL/SQL block has maximum ____ sections.
A. 1 B. 3 C. 4 D. None of given
8. _____ constraint establishes relationship between tables..
A. Primary key B. CHECK C. Foreign key D. none of given

Q2. Answer the following questions: [Any SEVEN]**[14]**

- 1 Write the differences between Logical data independence and physical data independence.
- 2 List out the advantages of using Functions and stored procedures.
- 3 Write the uses of EXCEPTION section in PL/SQL.
- 4 What is the main purpose of Normalization?
- 5 What is the use of table DUAL?
- 6 Explain use of ROLLBACK.
- 7 What you mean by sequence?.
- 8 Write the command to display the result of 500 * 600
- 9 List the differences between Procedure and Database Trigger.

Q3. A Explain briefly the PL/SQL block structure. [06]

B Define the term DBMS and RDBMS. Also write the differences between RDBMS and DBMS. [06]

OR

B Explain briefly the process of Normalization. [06]

Q4. A Write SQL commands for the following (Any THREE) [06]

i. Create a table DEMP having fields (ENO number(2,0), DNO number(1,0), ENAME varchar2(15)), where ENO is primary key and DNO is foreign key referencing DEPTNO of table DEPT.

ii. Add primary key on column DNO to an existing table DEPT.

iii. Give permission on table EMP to user XYZ to update the content of EMP.

iv. Delete all the records of table STUD.

B Assume that table STUD has fields SNO number(2,0), SNAME varchar2(15), BDATE date. Write a PL/SQL code block to read SNO from the user and display SNAME and BDATE of that student if SNO exists in the table STUD otherwise print the message that 'THIS SNO DOES NOT EXIST IN the table STUD'. [06]

OR

B Explain briefly the following commands : [06]

i. UPDATE ii. DELETE iii. ALTER TABLE

Q5. A Write short note on Cursor. [06]

B Write advantages of PL/SQL over SQL [06]

OR

B List out Dr. E. F. Codd rules for relational database. Explain any two of them. [06]

Q6. A Write short note on Concurrency control. [06]

B Explain briefly Database Trigger with its applications. [06]

OR

B Write a Function named FADD, which calculates addition of two numbers. Write a PL/SQL block code, which reads two numbers and using function FADD, calculates addition of that two numbers and print the result. [06]

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