Internal Assessment marks Submission format

Campus Name:									
Subject Name: Operating System						**Subject Code: CACS251**			
S N	TU Registratio n No.	Nam e	Symb ol No.	Mid – Ter m [5]	Pre – Fina l [5]	Assignme nt [5]	Attendanc e [5]	Tota l [20]	Remark s

Name of Subject Teacher:　　　　　　　　　　　　　　Name of
Director/HoD/Coordinator:

Signature:　　　　　　　　　　　　　　　　　　　　Signature:

Date:　　　　　　　　　　　　　　　　　　　　　　Date:

Tribhuvan University

Faculty of Humanities & Social Sciences

OFFICE OF THE DEAN

2019

Bachelor in Computer Applications　　　　　　　　Full Marks: 60
Course Title: Operating System　　　　　　　　　　Pass Marks: 24
Code No: CACS 251　　　　　　　　　　　　　　　Time: 3 hours
Semester: IV

Centre:　　　　　　　　　　　　　　　　　　　Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.　　　　　　　　　　　　　　[10×1 = 10]

1. Circle (O) the correct answer.

   i) In UNIX, which system call creates the new process?
   a) Fork　　　　b) create　　　　c) new　　　　d) none of the mentioned

ii) Which of the following does not contain process control block (PCB)?
   a) Code
   b) Bootstrap program
   c) Stack
   d) Data

iii) The Test And Set instruction in executed:

   a) After a particular process
   b) atomically
   c) Periodically
   d) none of these

iv) How circular wait condition can be prevented?

   a) By defining linear ordering of resource type

   b) By resource grant on all or none basis

   c) By using pipes

   d) By using threads

v) Which process can be affected by other processes executing in the system?
   a) Cooperating process
   b) Init Process
   c) Parent process
   d) Child Process

vi) External fragmentation will not occur when?

   a) First fit is used

   b) Worst fit is used

   c) Best fit is used

   d) No matter which algorithm is used, it will always occur

vii) What is compaction?
   a) A technique for overcoming internal fragmentation
   b) A technique for overcoming external fragmentation
   c) A paging technique
   d) A technique for overcoming fatal error

viii) Why is one-time password safe?

   a) It is easy to generated
   b) It is different for every access

   c) It cannot be shared
   d) It is complex encrypted password

ix) In distributed system each processor has its own:

   a) Local memory
   b) Clock

   c) Both local memory and clock
   d) none of these

x) How process on the remote system are identified:
   a) Host ID
   b) Host name and identifier
   c) Identifier
   d) Process ID

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.   www.bcanotesnepal.com   [6×5 = 30]

2. What is an operating system? Explain the functions of operating system.

3. Define the term semaphore. How does semaphore help in dining philosopher problem?

4. A system has two process and three resources. Each process needs a maximum of two resources. Is deadlock possible? Explain with answer.

5. Suppose a new process in a system arrives at an average of six processes per minute and each such process requires an average of 8 seconds of service time. Estimate the fraction of time the CPU is busy in a system with a single processor.

6. Given references to the following pages by a program,

    0, 9, 0, 1, 8, 1, 8, 7, 8, 7, 1, 2, 8, 2, 7, 8, 2, 3, 8, 3

   How many page faults will occur if the program has three page frames for each of the following algorithms?

   a) FIFO

   b) LRU

7. What is file? Explain how access control matrix provides resource protection that may access process.

8. What do you mean by one-time password in authentication? How worms are differing from virus.

Group C

Attempt any TWO questions.

9. Write CPU scheduling criteria. For the processes listed in following table, draw Gantt chart illustrating their execution and calculate average waiting time and turnaround time using:

   a) First Come First Serve

   b) Shortest Remaining Time Next

   c) Priority

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   d) Round Robin (quantum = 1 sec.)

Processes	Arrival Time	Burst Time (sec.)	Priority
A	0.00	7	3
B	2.01	7	1
C	3.01	2	4
D	3.02	2	2

10. Define the term seek time and rotational delay in disk scheduling. Suppose that a disk has 100 cylinders, numbered 0 to 99. The drive is currently serving a request at cylinder 43 and previous request was at cylinder 25. The queue of pending request, in FIFO order is: 86, 70, 13, 74, 48, 9, 22, 50, 30

    Starting from the current head position, what is total distance (in cylinders) that the disk arm moves to satisfy all pending request for each of following disk scheduling algorithms?

    a) FCFS

    b) SSTF

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    c) SCAN

    d) LOOK

11. What is clock synchronization? Explain how physical clock synchronize by Berkeley algorithm and logical clock synchronize by Lamport's algorithm with suitable example.

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