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UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION
NOVEMBER 2023

COURSE TITLE	**OPERATING SYSTEMS**
COURSE CODE	**RCIT2613**
DATE/DAY	**22 FEBRUARY 2024 / THURSDAY**
TIME/DURATION	**09:00 AM - 11:00 AM / 02 Hour(s) 00 Minute(s)**

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

(This Question Paper consists of 9 Printed Pages including front page)

DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO

This question paper contains of TWO (2) sections. Please answer ALL questions in the answer booklet provided. **[100 MARKS]**

SECTION A **(60 Marks)**

There are THIRTY (30) questions this part of the examination paper. Answer ALL questions in the answer booklet.

1. _____ is an open-source software.

   A. UNIX
   B. LINUX
   C. Window
   D. MAC

2. Operating system is the most common type of _____ software.

   A. system
   B. application
   C. utility
   D. database

3. Data and program stored in main memory when _____.

   A. the processor uses them
   B. computer on
   C. computer off
   D. computer connected to internet

4. If a process fails, most operating system writes the error into _____ .

   A. another running process
   B. log file
   C. new file
   D. recently used file

5. A program that run on several computers is said to be _____ .

   A. delegated
   B. spread
   C. distributed
   D. Iterative

6. What is an operating system?

   A. Collection of programs that manages hardware resources
   B. System service provider to the application programs
   C. Link to interface the hardware and application programs
   D. All of the mentioned

7. To access the services of operating system, the interface is provided by the _____ .

   A. system calls
   B. application Process Interface
   C. library
   D. assembly instructions

8. Which one of the following is not true?

   A. kernel is the program that constitutes the central core of the operating system
   B. kernel is the first part of operating system to load into memory during booting
   C. kernel is made of various modules which cannot be loaded in running operating system
   D. kernel remains in the memory during the entire computer session

9. Which one of the following error will be handle by the operating system?

   A. power failure
   B. lack of paper in printer
   C. connection failure in the network
   D. all of the mentioned

10. What is the main function of the command interpreter?

    A. To get and execute the next user-specified command
    B. To provide the interface between the API and application program
    C. To handle the files in operating system
    D. None of the mentioned

11. By operating system, the resource management can be done via _____ .

    A. time division multiplexing
    B. space division multiplexing
    C. time and space division multiplexing
    D. none of the mentioned

12. Booting in the operating system is _____ .

    A. restarting computer
    B. install the program
    C. to scan
    D. to turn off

13. What is used to protect network from outside internet access ?

    A. A trusted antivirus
    B. 24 hours scanning for virus
    C. Firewall to separate trusted and untrusted network
    D. Deny users access to websites which can potentially cause security leak.

14. What is **NOT** a role of encryption?

    A. It is used to protect data from unauthorized access during transmission
    B. It is used to ensure user authentication
    C. It is used to ensure data integrity
    D. It is used to ensure data corruption doesn't happen

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15. An interface between the user or an application program, and the system resources is _____.

    A. Microprocessor
    B. Microcontroller
    C. Multimicroprocessor
    D. operating system

16. A multiprocessor operating system should perform _____.

    A. mechanism to split a task into concurrent subtasks
    B. optimize the system performance
    C. handling structural or architectural changes
    D. all of the mentioned

17. Real time systems are _____.

    A. used on mainframe computers
    B. used for monitoring events as they occur
    C. used for program development
    D. used for batch processes

18. In _____ operating system, the response time is very critical.

    A. Multitasking
    B. Batch
    C. Online
    D. Real-time

19. The basic types of OS are _____.

    A. batch and time sharing
    B. sequential and real time
    C. direct and interactive
    D. batch and interactive

20. Which of the following is an operating system?

    A. MS-Access
    B. WordPad
    C. Android
    D. MS-Excel

21. Which is **NOT** the function of the Operating System?

    A. Memory management
    B. Disk management
    C. Application management
    D. Virus Protection

22. GUI stands for_____ .

    A. Graphics User Interface
    B. Graphical User Interchange
    C. Graphics User Interchange
    D. Graphical User Interface

23. Which of the following are the states of a five-state process model?
    i) Running   ii) Ready   iii) New   iv) Exit   v) Destroy

    A. i, ii, iii and v only
    B. i, ii, iv and v only
    C. i, ii, iii, and iv only
    D. All i, ii, iii, iv and v

24. _____refers to a situation in which a process is ready to execute but is continuously denied access to a processor in deference to other processes.

    A. Synchronization
    B. Mutual exclusion
    C. Deadlock
    D. Starvation

25. Which of the following is not an application software?

    A. Windows 11
    B. WordPad
    C. Photoshop
    D. MS-excel

26. Where is the list of processes that are prepared to be executed and waiting?

    A. Job queue
    B. Ready queue
    C. Execution queue
    D. Process queue

27. What is the use of directory structure in the operating system?

    A. The directory structure is used to solve the problem of the network connection in OS.
    B. It is used to store folders and files hierarchically.
    C. It is used to store the program in file format.
    D. All of the these

28. What type of scheduling is round-robin scheduling?

    A. Linear data scheduling
    B. Non-linear data scheduling
    C. Preemptive scheduling
    D. Non-preemptive scheduling

29. What is paging in the operating system?

    A. Memory management scheme
    B. Network management scheme
    C. Internet management scheme
    D. None of the these

30. Consider the following three processes in the FCFS (First Come First Serve) Algorithm. What is the average waiting time?

Process ID.	Duration	Arrival-time
P1	3	3
P2	6	6
P3	9	9

A. 2
B. 3
C. 4
D. 5

SECTION B
(40 Marks)

There are TWO (2) questions in this part of the examination paper. Answer ALL question in the answer booklet.

Question 1

(a) Briefly explain the **FOUR (4)** functions of Memory Management. (8 marks)

(b) Describe how "First Fit", "Best Fit" and "Worst Fit" memory allocation work with the aid of diagrams. (12 marks)

Question 2 (20 marks)

Describe **TWO (2)** types of scheduling algorithms

*** END OF QUESTION PAPER ***