Revision Paper – Operating system

1) What is 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 above
   e)None of the above

2) 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 can not be loaded in running operating system
   d) kernel remains in the memory during the entire computer session
   e)None of the above

3). In operating system, each process has its own
   a) address space and global variables
   b) open files
   c) pending alarms, signals and signal handlers
   d) all of the mentioned
   e)None of the above

5) The number of processes completed per unit time is known as _____.
   a) Output   b) Throughput   c) Efficiency   d) Capacity   e) Turnaround Time

6) The state of a process is defined by :
   a) the final activity of the process
   b) the activity just executed by the process
   c) the activity to next be executed by the process
   d) the current activity of the process
   e) None of the above

7) The objective of multi-programming is to :
   a) Have some process running at all times
   b) Have multiple programs waiting in a queue ready to run
   c) To minimize CPU utilization
   d) To minimize processor speed
   e) None of the above

8) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
   a) job queue   b) ready queue   c) execution queue   d) process queue
   e)None of the above

9) The interval from the time of submission of a process to the time of completion is termed as
   a) waiting time   b) turnaround time   c) response time   d) throughput   e)utilization time

10) CPU scheduling is the basis of _____.
   a) multiprocessor systems   b) multiprogramming operating systems
   c) larger memory sized systems   d) None of these   e)All of the above

11) A process is selected from the _____ queue by the _____ scheduler, to be executed.
 a) blocked, short term   b) wait, long term   c) ready, short term
 d) ready, long term   e) wait , medium term

12) Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called
 a) fragmentation   b) paging   c) mapping   d)swapping   e) none of the above

13) Program always deals with
a) logical address
b) absolute address
c) physical address
d) relative address

Part B

01)
i. What is an OS and why we use it?
ii. List down all the main functions of OS.
iii. What is Boot Strapping?
iv. Give one example for each for the following types of Operating systems
   a). Single user Single task OS   b). Single User multitask OS   c). Multiuser Multitask OS
v. Briefly describe the following terms regarding to OS
      a). File security   b). Real time OS   c). Multithreading

02)
i. Give an explanation to a file and list four attributes a file can have.
ii. What are the three main file types classified based on the content?
iii. Compare and contrast FAT and NTFS
iv. What are the three main file allocation methods. Explain one method briefly.
v. How does a disk get fragmented?

03)
i. What is a process? What are attributes of a process?
ii. How does a Multiprogramming systems maximizes the CPU utilization?
iii. What is the difference between multiprogramming and multiprocessing?
iv. List three types of process scheduling and explain each.
v. Draw a Process State Transition Diagram with suspended states. In your diagram, carefully label each state and each transition.
vi. For the following transitions, state if the transition is possible, and if it is then list an event that can
    cause it.
    (i) New -> Running   (ii) New -> Blocked   (iii) Running -> Terminated
    (iv) Running -> Blocked   (v) Ready -> Blocked

04)

i. List three memory management activities.

ii. Explain why fragmentation is needed in memory management?

iii. State the difference between internal fragmentation and external fragmentation.

iv. State a solution for external fragmentation and describe it.

v. What is swapping? Explain the two types of swapping.

05)

 i. Explain what is meant by virtual memory. State the main advantage of using virtual memory.

ii. How does virtual memory free up Main Memory/RAM?

iii. In the context of paging, explain what is meant by Paging, a frame and a page.

iv. Given the following logical address find the corresponding physical address.
   The memory management scheme is paging with 16-bit addressing and frame size of 1024.
    Logical address: 0000101011110000

Page table

Page number	Frame number			
0	101011		0	1001 1011
1	111100		1	1100
2	110011		2	0110
3	011010		3	1010
4	010101		4	

v. Find its physical address if the page table is as above:

v. What is importance of Device Drivers?

Revision Paper – Networks

MCQ

01)   An attempt to make a computer resource unavailable to its intended users is called
a) denial-of-service attack   b) virus attack   c) worms attack
d) botnet process   e) Phishing

02) In OSI network architecture, the routing is performed by
a). network layer   b). data link layer   c). transport layer
d). session layer   e). none of above

03) The loss in signal power as light travels down the fiber is called
a. attenuation   b. progragation   c. scattering   d. interruption   e. None of the above

04) MAC Address is the example of
a). network layer   b). data link layer   c). transport layer
d). session layer   e). application layer

05) What is the use of Ping command
a). To test a device on the network is reachable
b).To test a hard disk fault
c).To test a bug in a application
d).To test a Printer quality
e). To check the internet connection availability

06).   Which topology requires a central controller or hub?
a. Mesh   b. Star   c. Bus   d. Ring   e.Tree

07). The _____ layer lies between the network layer and the application layer.
a) Physical   b) Data link   c) Transport   d) Session   e) None of the above

08) Bluetooth is an example of
a) personal area network   b) local area network   c) virtual private network
d) Wide Area network   e) none of the above

09)HTTP is _____ protocol.
a) application layer   b) transport layer   c) network layer   d) none of the mentioned

10) The class of an IP address can be determined by the _____bits of the _____ byte of the IP address.
1. last four,first
2. first four,first
3. first four,last
4. last four,last

11) 110NNNNN . NNNNNNNN . NNNNNNNN . HHHHHHHH Which class of IP does this belong Where: N = network ID bitsH = host ID bits
1. Class A
2. Class B
3. Class C
4. Class D

12) Which one of the following addresses matches 11/8?
1. 15.31.184.254
2. 14.50.97.103
3. 8.85.29.189
4. 11.150.208.105
The prefix length of 8 is a multiple of eight so the first 8/8=1 byte must match 11 exactly.

13) Which of the following is a valid subnet mask?
1. 176.0.0.0
2. 96.0.0.0
3. 127.192.0.0
4. 255.128.0.0

14) Which class of IP address provides a maximum of only 254 host addresses per network ID?
   a). Class A   b).Class B   c). Class C   d). Class D   e). Class E

15) Which two statements describe the IP address 10.16.3.65/23?
       1.Thalid host address in the subnet ise subnet address is 10.16.3.0 255.255.254.0
       2.The lowest host address in the subnet is 10.16.2.1 255.255.254.0
       3. The last valid host address in the subnet is 10.16.2.254 255.255.254.0
       4. the broadcast address of the subnet is 10.16.3.255 255.255.254.0

   a) 1 and 3   b) 2 and 4   c) 1, 2 and 4   d) 2,3 and 4   e) 1 and 2

16) You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use?
       a)255.255.255.192   b) 255.255.255.224   c) 255.255.255.240
       d) 255.255.255.248   e) 255.255.255.32

17) You have a network that needs 2 subnets while maximizing no of host addresses available on each subnet. How many bits must you borrow from the host field to provide the correct subnet mask?
       a)2   b)3   c) 4   d)5   e) 8

18) Time synchronization is necessary in
   a) FDM.   b) TDM.   c) WDM.   d) Quadrature multiplexing   e) None of the above

19) Distortion caused on telephone line by an adjacent one is called

    a) Cross Fire   b) Inductive Disturbance   c) Cross Talk   d) Noise   e) None of these

20) Packet switching is used for

    a) Credit card verification   b) Automated Teller Machine   c) The internet and the World Wide Web

    d) All of the above   e) None of the above

Essay

(01)   IP address 199.100.10.47/ 26. Calculate the below things.

    i.   Subnet mask

    ii.   Number of subnetworks

    iii.   Number of host per network

    iv.   Valid IP address Ranges

    v.   Network address of valid IP address range

    vi.   1st IP address of valid IP range

    vii.   last IP address of valid IP range

    viii.   Broadcast IP address of valid IP range

(02) IP address 200.150.100.145/ 28. Calculate the below things.

    i.   Subnet mask

    ii.   Number of subnetworks

    iii.   Number of host per network

    iv.   Valid IP address Ranges

    v.   Network address of valid IP address range

    vi.   1st IP address of valid IP range

    vii.   last IP address of valid IP range

    viii.   Broadcast IP address of valid IP range

03) a) Explain for a small lan which class of IP addressing is used?

b) Explain bridge and switch.

c) What is modulation?

 d) i. What is crosstalk?

e) What is the effect of noise?

04) a) What are layers of OSI structure? Explain briefly the function of each one of them.

b) Explain the terms topology used in LANs.

c)Discuss the CSMA/CD and CSMA/CA protocols.

d) What are the advantages and disadvantages of packet switching over circuit switching?

e)State the types of Multiplexing and explain each.