END SEMESTER EXAMINATIONS (DECEMBER 2021/JANUARY 2022) - QUESTION PAPER - PART A

COURSE CODE : **ICE 4060**
COURSE NAME : **REAL TIME OPERATING SYSTEM**
SEMESTER : **VII**
DATE OF EXAM : **17/12/2021**
DURATION : **45 + 5 minutes**

Instructions for Students:
(1) ANSWER ALL THE QUESTIONS.
(2) EACH QUESTION CARRIES 1 MARK.
(3) YOU ARE INSTRUCTED TO INFORM THE INVIGILATOR AFTER SUBMISSION OF THIS FORM IN THE CHAT SECTION.

* Required

* This form will record your name, please fill your name.

1

STUDENT NAME: *

2

REGISTRATION NUMBER: *

[   ]

The value must be a number

3

Hard real time operating system has _____ jitter than a soft real time operating system *
(1 Point)

○ Less

○ more

○ equal

○ none of the above

4

Task with similar utilization are allocated to the same process .... algorithm *
(1 Point)

○ utilization balancing

○ Bin packing

○ RMS

○ next fit

5

In which priority of the task assigned by the programmer will remain unchanged *
(1 Point)

○ static

○ Dynamic

○ Flash

○ Hybrid

6

Which will be not a component of operating system *
(1 Point)

○ file system

○ process control system

○ device driver system

○ Cloud computing

7

Alteration between transmission of fixed sized packets and an idle period *
(1 Point)

○ CBR

○ VBR

○ Sporadic traffic

○ None of the above

8

why quarts is used for oscillator design *
(1 Point)

○ small and compact in size

○ not a good conductor of temperature

○ not having a elastic property

○ it will not rust

9

In which mode a task service will not be non preemptible *
(1 Point)

○ kernal mode

○ User mode

○ Optimal mode

○ Drive mode

10

Each time when the clock interrupt arrives list the activities that take place *
(1 Point)

☐ Activate ISR flag

☐ Process timer events

☐ update execution budget

☐ update the ready queue

☐ Interrupt flag will be high

11

Calculate worst case response time {(1,3), (1,5),(1,6),(2,10)} *
(1 Point)

○ 1,2,3,4

○ 1,2,3,9

○ 1,3,4,9

○ 2,3,5,6

12

list the categories of timers *
(1 Point)

☐ real time timer

☐ periodic timer

☐ one set timer

☐ pulse timer

☐ clock driven timer

13

1.   A video source transmit 300 frames /sec each frame contains 2Mb data. Jitter is 5 sec. Calculate the buffer size *
(1 Point)

○ 30

○ 300

○ 3000

○ 30000

14

What are not Parameters of QOS *
(1 Point)

☐ network quality

☐ transmission delay

☐ delay jitter

☐ loss rate

☐ connection quality

☐ Bandwidth

15

In which protocol propagation time is less *
(1 Point)

◯ CAN

◯ LAN

◯ VAN

◯ WAN

16

Calculate response time for task3 *
(1 Point)

Task	C	T
1	40	100
2	40	150
3	100	350

○ 200

○ 600

○ 300

○ 350

17

In RT Linux system calls will take *
(1 Point)

○ Long time

○ Short time

○ Wait for call

○ Interrupt the process

18

which algorithm performance is better *
(1 Point)

○ first fit random

○ first fir decreasing

○ Bin packing

19

what are not process control calls *
(1 Point)

☐ Open

☐ Wait

☐ Read

☐ Write

20

In which topology nodes use broadcast mode of communication *
(1 Point)

○ Star

○ Bus

○ Ring

○ Tree

21

which is common mode of clock synchronization *
(1 Point)

○ internal clock

○ external clock

○ distributed clock

○ auto synchronization clock

22

Select Open source RTOS *
(1 Point)

○ Apache

○ Bind

○ AMX -RTOS

○ EROS

○ All the above

23

Which will be major component of operating system *
(1 Point)

◯ file system

◯ process control system

◯ device driver system

◯ Cloud computing

24

Unix V is suitable for ...... real time system *
(1 Point)

◯ Hard

◯ Soft

◯ Firm

◯ None of the above

25

How does a process access system resources *
(1 Point)

◯ system call

◯ process interrupt

◯ scheduling process

◯ call resources

26

problems with circuit switched network *
(1 Point)

☐ not effective for applications that are inherently bursty in nature

☐ it is not suitable for firm real time system

☐ fixed portion of bandwidth is reserved based on the peak bandwidth requirement

☐ communication delay due to slow data transmission

27

which factor will affect the frequency of a quarts crystal *
(1 Point)

○ angle at which the quarts is cut

○ crystal temperature

○ size

○ input signal

28

Example for monolithic kernal *
(1 Point)

☐ Windows

☐ MS-Dos

☐ Unix

☐ Linux

29

An alarm system is am example of *
(1 Point)

○ CBR

○ VBR

○ Sporadic traffic

○ None of the above

30

In which scheduling certain amount of CPU time is allocated to each process?
*
(1 Point)

○ earliest deadline first scheduling

○ proportional share scheduling

○ equal share scheduling

○ none of the mentioned

31

   In real time communication Loss rate arrives due to *
(1 Point)

○ Delay bound variation

○ delay jitter bound variation

○ Buffer overflow

○ Transmission delay

○ Data corruption

32

List the OS which will fall under the category of hard real time system *
(1 Point)

☐ VX works

☐ Linux

☐ Windows CE

☐ Windows NT