CS & IT ENGINEERING



Operating System

System Calls and Threads

DPP 01 Discussion Notes



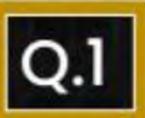
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TOPICS TO BE COVERED

01 Question

02 Discussion



Consider the below code segment. Total new process created is _____



```
#include<stdio.h>
                                                                         [NAT]
int main (){
                                          fork()
fork()
fork()
fork()

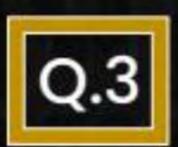
fork()

4 times
          int i;
          for (i=0; i<5, i+=2) {
          switch(i)
       Case 0: fork();
                                               => 11 Limes
       Case 1: fork(); fork();
       Case 2: fork(); fork(); break;
       Case 3: fork(); fork(); fork(); break;
                                                 P"-1=) 2048-1
=> 2047
       Case 4: for (j = i, j >= 1, j --) fork();
   return 0;
                          1 18 AN 1
```

Consider the following code:



What will be the number of child processes/newly created processes for the above code?



Match List - I and List - II and select the correct answer using the



[MCQ]

code given below: List - 1

- A. Context switching
- B. Degree of multi programming
- C. Message passing
- D. Fork()

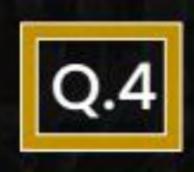
Codes:

A	B	C	D
3	1	2	4

- 2 3 4 1
- C. 1 3 4 2
- D. 4 2 1 3

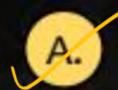
List - II

- 1. Process creation
- 2. Dispatcher
- 3. Long term scheduler
- 4. Inter process communication



To access the services of operating system, the interface is W provided by the

[MCQ]



System call



API



Library



Assembly Instructions.



The following program fragment prints the strings "GATE2023"



[MCQ]

```
main ()
    {
        fork ();
        fork ();
        printf("GATE2023"\n);
    }
```

how many number of times?

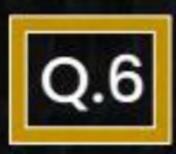
A.

B. 2

C. 4

D.

2 = 2 = 1 1 = 2 = 1



Which of the following scheduling can be done by thread library?



- A. User thread scheduling
- B. Process Scheduling
- C. Kernel thread scheduling
- D. × None of the above.



Consider the following code: void main()

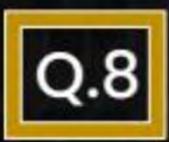
```
Pw
```

```
for (int k = 1; k < 5; k++)
pid[k] = fork();
}</pre>
```

How many child processes created by the above code:

[MCQ]

$$\frac{\pi}{2^{-1}} = \frac{\pi}{2^{-1}} = \frac{\pi}{16^{-1}} = \frac{\pi}{15}$$



Consider the following statements with respect to user-level



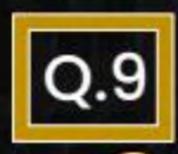
threads and kernel – level threads.

S₁: Context switching in kernel level threads is faster than user level threads.

S₂: If one thread of user – level gets blocked, entire process also gets blocked.

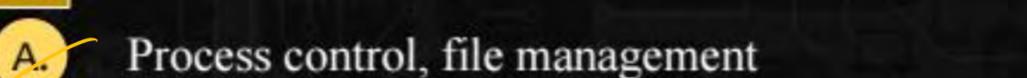
S₃: kernel – level threads can be scheduled independently. [MCQ]

- A. S_1 and S_3 only \times
- B. Only S₂ ×
- C. Only S₃
- S_2 and S_3 only



What are the types of system calls in an operating system?







Device management.



Communication.



Information maintenance.



Which of the following operations require the executing code to be operating with Kernal mode?



- B. Making system call X
- Disabling interrupt
 - D. Both (a) and (c)



