Started on	Wednesday, 3 February 2021, 5:15 PM
State	Finished
Completed on	Wednesday, 3 February 2021, 5:41 PM
Time taken	26 mins 14 secs
Marks	7.00/10.00
Grade	**70.00** out of 100.00

Question 1

Correct

Mark 1.00 out of 1.00

What is the output of the following program?

```
class Alpha
{
   static String s = " ";
   protected Alpha()
   {
      s += "alpha ";
   }
}
class SubAlpha extends Alpha
{
   private SubAlpha()
   {
      s += "sub ";
   }
}
public class SubSubAlpha extends Alpha
{
   private SubSubAlpha()
   {
      s += "subsub ";
   }
   public static void main(String[] args)
   {
      new SubSubAlpha();
      System.out.println(s);
   }
}
```

Select one:

- **a. subsub sub**
- **b. sub subsub**

c. alpha subsub

SubSubAlpha extends Alpha! Since the code doesnt attempt to make a SubAlpha, the private constructor in SubAlpha is okay.

d. subsub

The correct answer is: alpha subsub

Question 2

Correct

Mark 1.00 out of 1.00

What is the output of the following program?

```
public class Outer
{
        private int data = 10;

        class Inner
        {
                private int data = 20;
                private int getData()
                {
                        return data;
                }
                public void main(String[] args)
                {
                        Inner inner = new Inner();
                        System.out.println(inner.getData());

                }
        }
        private int getData()
        {
                return data;
        }
        public static void main(String[] args)
        {
                Outer outer = new Outer();
                Outer.Inner inner = outer.new Inner();
                System.out.printf("%d", outer.getData());
                inner.main(args);
        }
}
```

Select one:

- **a. None of these**
- **b. 2010**
- **c. Compilation Error**

d. 1020

Inner class defined above though, have access to the private variable data of the Outer class, but declaring a variable data inside an inner class makes it specific to the Inner class with no conflicts in term of variable declaration.

The correct answer is: 1020

Question 3

Incorrect

Mark 0.00 out of 1.00

What is the output of the following program?

```
public class Test implements Runnable
{
        public void run()
        {
                System.out.printf("kmit ");
                System.out.printf("ngit ");
        }
        public static void main(String[] args)
        {
                Test obj = new Test();
                Thread thread = new Thread(obj);

                thread.start();
                System.out.printf("ngit ");
                try
                {
                        thread.join();
                }
                catch (InterruptedException e)
                {
                        e.printStackTrace();
                }
                System.out.println("kmec ");
        }
}
```

Select one:

a. kmit ngit ngit kmec

b. ngit kmit ngit kmec

c. Either a or b

d. Both a and b together

The correct answer is: Either a or b

Question 4

Correct

Mark 1.00 out of 1.00

What is the output of the following program?

```
class myThread implements Runnable
{
        public void run()
        {
                Test.obj.notify();
        }
}

public class Test implements Runnable
{
        public static Test obj;
        private int data;
        public Test()
        {
                data = 10;
        }
        public void run()
        {
                obj = new Test();
                obj.wait();
                obj.data += 20;

                System.out.println(obj.data);
        }
        public static void main(String[] args) throws InterruptedException
        {
                Thread thread1 = new Thread(new Test());
                Thread thread2 = new Thread(new myThread());
                thread1.start();
                thread2.start();
                System.out.printf(" kmit - ");
        }
}
```

Select one:

- **a. kmit –**

b. Compilation error

Explanation: An object must first acquire a lock before calling wait() method. Also wait() method throws Checked exception(InterruptedException), we must include it in a try-catch block or throws it.

c. 30 kmit –

d. kmit – 30

The correct answer is: Compilation error

Question **5**

Correct

Mark 1.00 out of 1.00

A process has been allocated 3 page frames. Assume that none of the pages of the process are available in the memory initially. The process makes the following sequence of page references (reference string): 1, 2, 1, 3, 7, 4, 5, 6, 3, 1 If optimal page replacement policy is used, how many page faults occur for the above reference string?

Select one:

- **a. 9**
- **b. 10**
- **c. 8**
- **d. 7**

Explanation: Optimal replacement policy looks forward in time to see which frame to replace on a page fault. 1 23 -> 1,2,3 //page faults 173 ->7 143 ->4 153 -> 5 163 -> 6 Total=7 So Answer is A

The correct answer is: 7

Question 6

Incorrect

Mark 0.00 out of 1.00

In a system with 32 bit virtual addresses and 1 KB page size, use of one-level page tables for virtual to physical address translation is not practical because of

Select one:

- **a. the large memory overhead in maintaining page tables**

- **b. the large amount of internal fragmentation**
- **c. the large amount of external fragmentation**
- **d. the large computation overhead in the translation process**

The correct answer is: the large amount of internal fragmentation

Question 7

Incorrect

Mark 0.00 out of 1.00

Consider a set of n tasks with known runtimes r1, r2, … rn to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput?

Select one:

- a. **Shortest-Job-First**
- b. **Highest-Response-Ratio-Next**
- c. **First-Come-First-Served**
- d. **Round-Robin**

The correct answer is: Shortest-Job-First

Question 8

Correct

Mark 1.00 out of 1.00

A process executes the code

fork();

fork();

fork();

The total number of child processes created is

Select one:

- a. 4
- b. 7

Explanation:

Let us put some label names for the three lines

```
 fork ();    // Line 1
 fork ();   // Line 2
 fork ();   // Line 3

      L1       // There will be 1 child process created by line 1
    /    \
  L2      L2    // There will be 2 child processes created by line 2
 / \    / \
L3  L3  L3  L3  // There will be 4 child processes created by line 3
```

- c. 3
- d. 8

The correct answer is: 7

Question 9

Correct

Mark 1.00 out of 1.00

A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is

Select one:

- a. **0111111111**
- b. **0111110100**
- c. **0111111101**
- d. **0111110101**

Explanation:
Bit Stuffing is used to create framing.
8-bit delimiter pattern is 01111110.
The output bit-string after stuffing is 01111100101.
The above highlighted bit is stuffed bit.
So input bit-string must be 011111010

The correct answer is: 0111110101

Question **10**

Correct

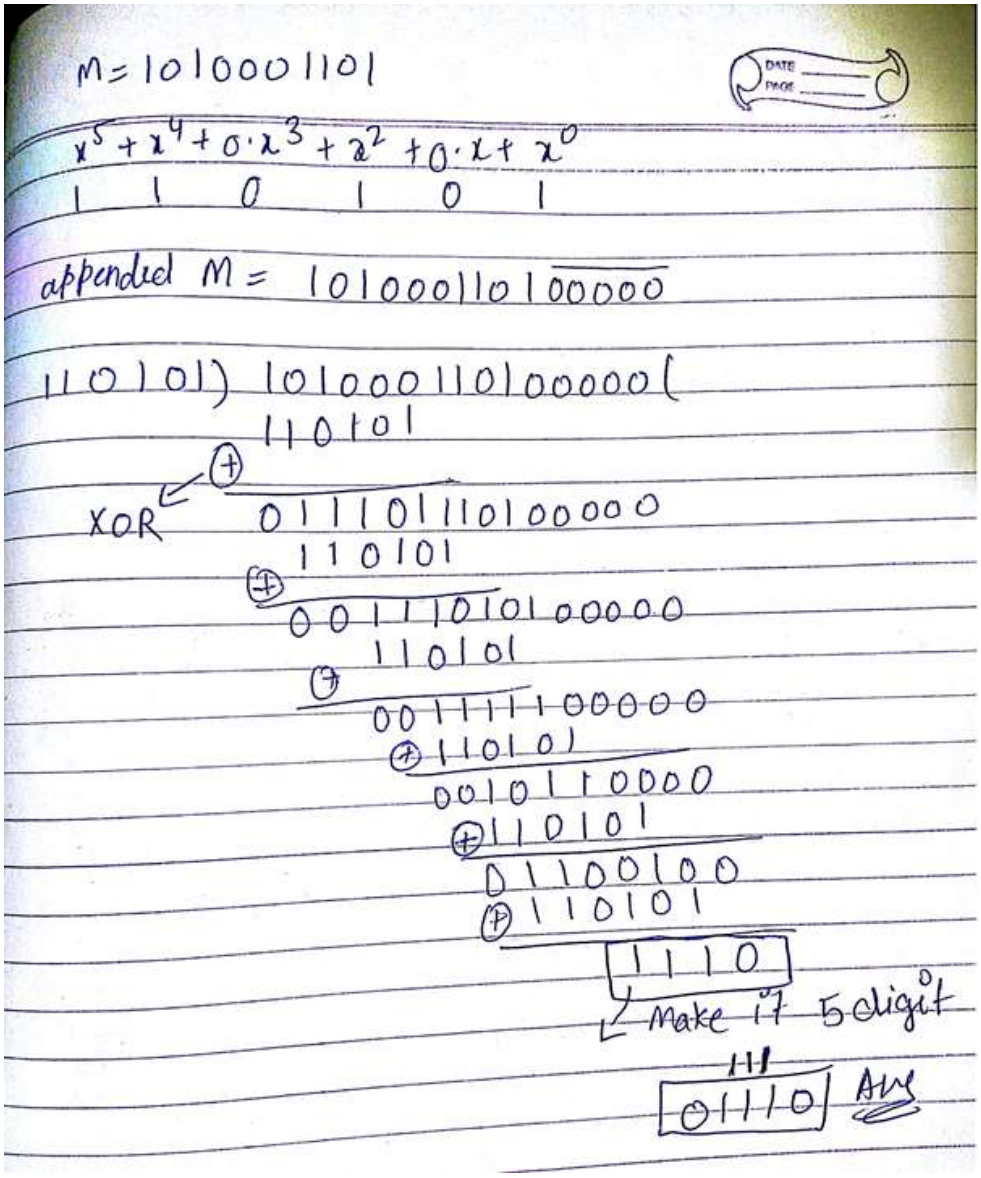
Mark 1.00 out of 1.00

Consider the following message M = 1010001101. The cyclic redundancy check (CRC) for this message using the divisor polynomial x^5 + x^4 + x^2 + 1 is :

Select one:

a. 01110

M = 1010001101
Divisor polynomial: 1.x5 +1.x4+0.x3+1.x2+0.x2+1.x0
Divisor polynomial bit= 110101
Bits to be appended to message= (divisor polynomial bits – 1) = 5
Append 5 zeros to message bits, modified message: 101000110100000



- **b. 10101**
- **c. 10110**
- **d. 01011**

The correct answer is: 01110