

### III-MCA/MSc.IT(T-301)-OOPJ

**2018**

Full Marks - 40

Time - 3 hours

The questions are of equal value

Answer *all* questions.

1. a) Explain about Java Programming Environment.  
What's the difference between JDK and JRE ?  
Explain the steps to compile and execute Java program.
- b) Complete the following Java method body to print a pattern (see example) Ex. when  $n = 5$ , it should print like (use TAB for spacing) :

```

                1
            2   3
        4   5   6
    7   8   9   10
11  12  13  14  15
```

```
// method
```

```
void print Number pattern (int n)
```

```
{
```

```
    /* write your code here */
```

```
}
```

OR

[ 2 ]

- c) What are the use of static keyword in Java. What's static block ? Explain with a suitable example.
- d) Implement the body of the following Java method which returns true if the argument 'n' is a prime number, false otherwise.

```
boolean isprime ( int n )  
{  
    // write your code here  
}
```

2. a) Does Java supports multiple inheritance ? Explain the use of interface. Can interface be extended ?
- b) What's the difference between method overriding and method overloading ? Explain with a suitable Java example.

OR

- c) What's inheritance ? Explain the use of 'public', 'protected' and 'private' using suitable Java example. Is multiple inheritance possible in Java ?

[ 3 ]

- d) Why package is required ? What are the steps to create a package in Java. Explain how packages are used in Java ?

3. a) What's Exception handling ? Write a program in Java to demonstrate multiple try-catch block.
- b) What's Thread ? Explain how threads are implemented in Java using both Runnable interface and Thread class.

OR

- c) Are Java strings mutable ? Explain Java string class and methods like charAt, concat, endsWith, indexOf and trim with simple examples.
- d) What are Java's built in Exception ? Write a program in Java to demonstrate User defined Exception.

4. a) Discuss in detail about the Life Cycle of an Applet.
- b) Write a program Using Java AWT to show the interface of a calculator showing buttons labelled '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '0', '+', '-', '\*', and '/'.

OR

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[Turn Over

[ 4 ]

- c) What's Applet context ? Explain how parameters are passed to an Applet. Is it possible to run Applet in latest browsers ?
- d) Write a program using Java AWT to draw a circle and rectangle.

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