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**INTERNATIONAL CENTER FOR APPLIED SCIENCES**

(A constituent college of Manipal University, Manipal)

Manipal Karnataka 576 104

**II SEMESTER B.S.(CS) III SESSIONAL TEST**

**SUBJECT: JAVA PROGRAMMING (CS 124)**

**Max Marks: 20 Date: 12/04/2017 Duration: 1 hour**

**Instructions:**

* **Answer any Five full QUESTIONS Leave the first page of the**
* **Answer Book Blank**

1. Write five main difference between *throw* and *throws* keywords of Java in the form of table. 5M

Ans:

|  |  |  |
| --- | --- | --- |
| **No.** | **throw** | **Throws** |
| 1) | Java throw keyword is used to explicitly throw an exception. | Java throws keyword is used to declare an exception or to pass it on to the caller of the method |
| 2) | Checked exception cannot be propagated using throw only. | Checked exception can be propagated with throws. |
| 3) | throw is followed by an instance. | throws is followed by class name |
| 4) | throw is used within the method. | throws is used with the method signature. |
|  |  |  |
| 5) | You cannot throw multiple exceptions.  Throw e;  // e is of some Exception type | Multiple exceptions can be declared by the same method e.g. public void method()throws IOException,SQLException. |

1. a) Explain the significance of seek ( ) method of RandomAccessFile with an example and prototype. 2M

Ans:

The method seek() is used to set the current position of the file pointer within the file: 1M

void seek(long *newPos) throws IOException 1M*

*newPos specifies the new position, in bytes, of the file pointer from the beginning* of the file.

After a call to seek( ), the next read or write operation will occur at the new file position.

rafObj.seek(20);

b) Write a function which takes file name as a parameter and if the file with the file name exists and it is a normal file, display the length of a file without using any stream classes. Write main to test the function. 3M

Ans:

import java.io.\*;

class TestFile

{

static void fileLength(String filename)

{ File f=new File(filename);

if ( f.exists() && f.isFile())

System.out.println(f.length());

else

System.out.println("file does not exist");

}

public static void main(String args[])

{ fileLength("TestFile.java");

}

}

1. Write a function to copy contents of one file to the other using byte stream classes. The

function should take 2 file names (source file and destination file ) as parameters. Also write a main() to test the function. 5M

Ans:

void copyFile(String fromFile, String toFile) {

try

{

FileInputStream fin =

new FileInputStream(fromFile);

FileOutputStream fout =

new FileOutputStream(toFile))

{

do {

i = fin.read();

if(i != -1) fout.write(i);

} while(i != -1);

} catch(IOException exc) {

System.out.println("I/O Error: " + exc);

}

Finally

{

fin.close();

}

4) a) Write and explain Applet skeleton. 3M

Ans:

import java.awt.\*;

import java.applet.\*;

/\* <applet code="AppletSkel" width=300 height=100> </applet> \*/

public class AppletSkel extends Applet {

// Called first.

public void init() {

// initialization

}

/\* Called second, after init(). Also called whenever the applet is restarted. \*/

public void start() {

// start or resume execution

} (1.5M)

// Called when the applet is stopped.

public void stop() {

// suspends execution

}

/\* Called when applet is terminated. This is the last method executed. \*/

public void destroy() {

// perform shutdown activities

} !1.5M)

// Called when an applet's window must be restored.

public void paint(Graphics g) {

// redisplay contents of window

}}

b) How are parameters passed to an applet? Give an example 2M

Ans:

* The PARAM tag allows you to specify appletspecific arguments in an HTML page
* Applets access their attributes with the **getParameter( )** method (0.5M)

// Use Parameters

import java.awt.\*;

import java.applet.\*;

/\* <applet code="ParamDemo" width=300 height=80>

<param name=fontName value=Courier>

</applet> \*/

public class ParamDemo extends Applet{

String fontName;

public void start() {

String param;

fontName = getParameter("fontName");} (1.5M)

1. What is the effect of adding the synchronized keyword to a method? Demonstrate with

complete example program 5M

Ans:  
Synchronization is easy in Java, because all objects have their own implicit monitor associated with them. To enter an objects monitor, just call a method that has been modifed with the synchronized keyword. Once a thread is inside a synchronized method, no other thread can call any other synchronized method on the same object (1M)

class Callme {

synchronized void call(String msg) {

System.out.print("[" + msg);

try {

Thread.sleep(1000);

} catch(InterruptedException e) {

System.out.println("Interrupted");

}

System.out.println("]");

}

}

class Caller implements Runnable {

String msg;

Callme target;

Thread t;

public Caller(Callme targ, String s) {

target = targ;

msg = s;

t = new Thread(this);

t.start();

} **// synchronize calls to call()**

public void run() {

synchronized(target) { **// synchronized block: Synchronized statement (2M)**

target.call(msg);

}

} } (4M)

class Synch {

public static void main(String args[]) {

Callme target = new Callme();

Caller ob1 = new Caller(target, "Hello");

Caller ob2 = new Caller(target, "Synchronized");

Caller ob3 = new Caller(target, "World");

try { // wait for threads to end

ob1.t.join();

ob2.t.join();

ob3.t.join();

} catch(InterruptedException e) {

System.out.println("Interrupted");

} } }

6) Write an applet program which takes integer input N from the user and print the prime numbers up to N on the applet window. Also display the message “Prime Number List” at the status window. 5M

Ans:

mport java.util.\*;

import java.applet.\*;

/\*<applet code="PrimeApp" width=500 height=500>

<param name=N value=10>

</applet>\*/

public class PrimeApp extends Applet{

int N,f;

public void init(){

N=Integer.parseInt(getParameter("N"));

}

public void paint(Graphics g){

for (int i=2;i<=N;i++)

{f=1;

for(int j=2; j<i-1;j++)

if (i%j==0) { f=0; break;}

if (f==1)

g.drawString(i+"",20,i\*30);

}

}

}

\*\*\*\*\*GOODLUCK\*\*\*\*\*