1. What will be the output of the following C application?

```c
#include <stdio.h>

void main()
{
    char v[] = { 97, 99, 102 };
    char* pa = v;

    *(pa + 1) = *(pa + 1) - 1;
    printf("\na = %d, *pa = %X", v[1], pa[2]);
}
```

a) **a = 98, *pa = 66**
b) a = 99, *pa = 98
c) a = 98, *pa = 99
d) a = 62, *pa = 65
e) a = 98, *pa = 98

2. What will be the content of the file **test.bin** as hexa-decimal pairs of figures (1 pair means 1 Byte) after running the following C application (little-endian approach)?

```c
#include <stdio.h>

void main()
{
    long int buffer = 0x12345678;
    FILE* fp;

    fp = fopen("test.bin", "wb");

    for (int i = 0; i < sizeof(long int); i++)
        fwrite((char*)((char*)&buffer + i), sizeof(char), 1, fp);

    fclose(fp);
}
```
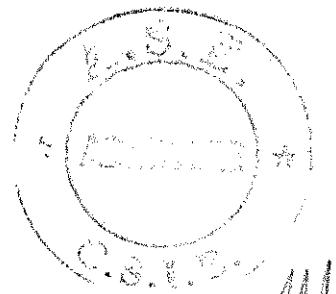
a) **78563412**
b) 56781234
c) 12347856
d) 12345678
e) 87654321

3. What will be the output of the following C application?

```c
#include <stdio.h>

char f1(char x, int* y)
{
```

```c
        (*y)++;
        x += *y;

        return x;
}

char f2(char &x, int y)
{
        y++;
        x += y;

        return x + y;
}

void main()
{
        char a = 0x65;
        int b = 1;

        a = f1(a, &b);
        b = f2(a, b);

        printf("%d %d\n", a, b);
}
```

   a) **106 109**
   b) 106 110
   c) 101 109
   d) 101 110
   e) 105 109

4. What will be the output of the following C++ application?

```c
#include <stdio.h>

void f(char x, int *y)
{
        y++;
        x += y;
}

void main()
{
        char a = 65;
        char b = 1;

        f(b, (int*)&a);

        printf("%d %d", a, b);
}
```
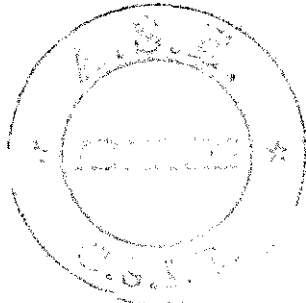
a) **Compilation error triggered by the implementation of function f**
b) Compilation error triggered by the call to the function f
c) 65 1
d) 65 66
e) 66 1

5. What will be the output of the following C application?

```c
#include <stdio.h>
#include <string.h>

void main()
{
    char pattern[] = "exam";
    char* pv = pattern + 1;

    if (pv == pattern)
        printf("Same content\n");
    else
        printf("Different content\n");

    if (&pv != (char**)pattern)
        printf("Different content\n");
    else
        printf("Same content\n");

    if (*pv == pattern[1])
        printf("Same content\n");
    else
        printf("Different content\n");

    if (!strcmp(pv, pattern))
        printf("Same content\n");
    else
        printf("Different content\n");
}
```
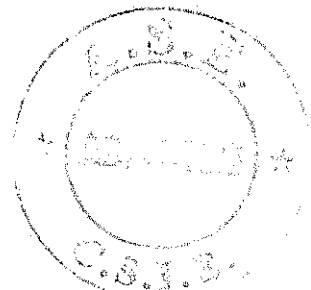
a)
Different content
Different content
Same content
Different content
b)
Same content
Same content
Same content
Same content
c)
Different content

Same content
Different content
Different content

d)

Different content
Different content
Different content
Same content

e)

Same content
Different content
Different content
Same content

6. What is the right choice to make a valid string size allocation and content use of the heap memory in C++ code?

a)
```
char vstr[] = "tst";
char* str = new char[strlen("Exam")];
str[strlen(vstr)] = 0;
strncpy(str, vstr, strlen(vstr));
```
b)
```
char vstr[] = "tst";
char* str = new char[strlen("Exam")];
strncpy(str, vstr, strlen(vstr));
```
c)
```
char vstr[] = "tst";
char* str = new char[strlen("Exam")];
str[strlen(vstr)] = '0';
strncpy(str, vstr, strlen(vstr));
```
d)
```
char vstr[] = "tst";
char* str = new char[strlen("Exam" + 1)];
memset(str, 0, strlen("Exam" + 1));
strncpy(str, vstr, strlen(vstr));
```
e)
```
char vstr[] = "tst";
char* str = new char[strlen("Exam") - 1];
strncpy(str, vstr, strlen("Exam") - 1);
```

7. What will be the output of the following C application (x86 architecture C compiler, pointers are FAR by default)?

```
#include <stdio.h>
```
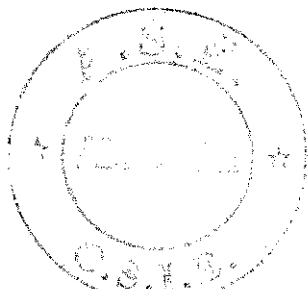
```
#include <string.h>

void main()
{
        char str[] = "A string";
        char* pstr = new char[strlen(str) + 1];
        strcpy(pstr, str);

        printf("%d %d %d %d\n", strlen(str), sizeof(str), sizeof(pstr), sizeof(*pstr));
}
```

   a) 8 9 4 1
   b) 8 8 4 1
   c) 8 9 4 4
   d) 9 9 4 1
   e) 9 8 4 4

8. In the following C++ application, how many times the destructor of the class Student is called?

```
#include <stdio.h>

class Student
{
private:
        int age;
        char* name;
public:
        Student(int v = 0)
        {
                this->age = v;
                this->name = NULL;
        }
};

void main()
{
        Student x;
        int age1 = 21, age2 = 20;

        Student s1(age1);
        Student s2(age2);
        for (int i = 1; i <= 3; i++)
        {
                Student s3 = s1;
        }
        x = s2;
}
```
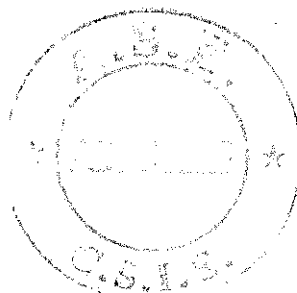
   a) 6 times
   b) 5 times
   c) 0 times

113

d) 7 times

e) There is no destructor attached to the class **Student**

9. In the following C++ application, how many times the operator = is called for the objects Students?

```cpp
#include <stdio.h>
#include <string.h>

class Student
{
public:
        int age;
        char* name;
public:
        Student(int v = 0, char* sname = NULL)
        {
                this->age = v;
                if (sname != NULL)
                {
                        this->name = new char[strlen(sname) + 1];
                        strcpy(this->name, sname);
                }
                else
                        this->name = NULL;
        }

        Student(const Student& s)
        {
                this->name = new char[strlen(s.name) + 1];
                strcpy(this->name, s.name);
                this->age = s.age;
        }

        ~Student()
        {
                if (this->name)
                        delete[] this->name;
        }

};

void main()
{
        int age1 = 21;

        Student s1(age1, "John");
        Student s2 = s1;
        Student s3 = s1;
        Student s4;
        s4 = s3;
}
```
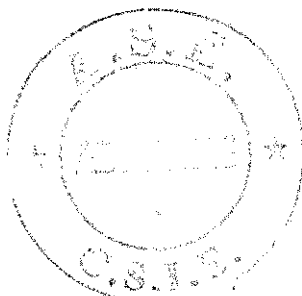
a) **1 single time**
b) 3 times
c) No call to overloaded operator =
d) 4 times
e) Compilation error because there is no overload of operator = implemented by the class **Student**

10. In C++, the default constructor is called when

a) **An object is created by using predefined values for its attribute members**
b) An object is created from another object of the same type
c) An object is passed to a method by its reference
d) An object is returned by its reference as result of a method
e) An object is initialized by using the attribute member values of other object

11. What will be the output of the following C++ application?

```cpp
#include <iostream>
using namespace std;

class MyClass {
public:
        static int n;

        MyClass()
        {
                n++;
        }

        ~MyClass()
        {
                n--;
        }
};

int MyClass::n = 0;

void main() {
        MyClass mc1, mc2, *pmc;
        pmc = new MyClass;

        cout << MyClass::n << " ";
        pmc = &mc2;
        cout << MyClass::n << endl;
}
```
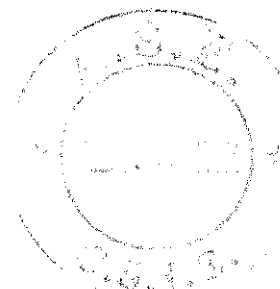
a) **3 3**
b) 3 2
c) 2 2
d) 2 3
e) 3 1

12. What will be the output of the following C++ application?

```cpp
#include <iostream>
using namespace std;

class MyClass {
      char x;
public:
      static int n;

      MyClass(char in = '0')
      {
            this->x = in;
            n++;
      }
      ~MyClass()
      {
            n--;
      }
      void change(char in)
      {
            this->x += in;
      }
      char getX()
      {
            return this->x;
      }
      void setX(char in)
      {
            this->x -= in;
      }

};
int MyClass::n = 0;

void change(MyClass& obj, char in)
{
      obj.setX(in);
}

void main() {
      MyClass mc1(67), mc2(67), *pmc;
      change(mc1, 2);
      mc2.change(2);
      mc1 = mc2;
      pmc = &mc1;
      pmc->change(2);

      printf("%d %d\n", mc1.getX(), mc2.getX());
}
```
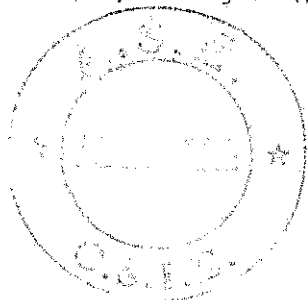
a) **71 69**
b) 69 69
c) 65 65
d) 69 71
e) 71 71

13. What will be the output of the following C++ application?

```cpp
#include <iostream>
using namespace std;

class A
{
public:
    void print()
    {
        cout << "Class A" << endl;
    }
};

class B
{
public:

    B(const A& x) {}
    B() {}

    B& operator= (const A& x) { return *this; }

    void print()
    {
        cout << "Class B" << endl;
    }
};

void main()
{
    A ob_A;
    B ob_B1, ob_B2 = ob_A;

    ob_B1 = ob_A;
    ob_B1.print();
    ob_B2.print();

    ob_A.print();
}
```
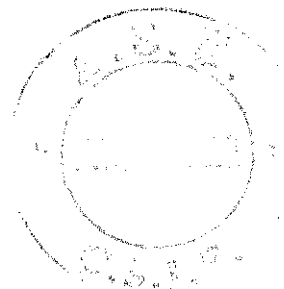
a) **Class B**
   Class B
   Class A

b) Compilation error message

c)

Class B
Class A
Class A

d)

Class A
Class A
Class A

e)

Class A
Class B
Class A

14. What will be the output of the following C++ application?

```cpp
#include <iostream>
using namespace std;

class String
{
private:
        int length;
        char* ps;
public:
        String();
        String(const char*);
        ~String();
        const String& operator=(const String&);
        const String& operator+(const String&);
        const String& operator+(const char*);
        char* getString() { return this->ps; }
};
String::String() {
        this->length = 0;
        this->ps = NULL;
}
String::String(const char* str) {
        this->length = strlen(str);
        this->ps = new char[this->length + 1];
        strcpy(this->ps, str);
}
String::~String() {
        if (this->ps) delete[] this->ps;
        this->length = 0;
        this->ps = NULL;
}
const String& String::operator+(const String& strSrc) {
        String* tempS;
        tempS = new String();
        tempS->length = this->length + strSrc.length;
        if (tempS->ps != NULL) delete[] tempS->ps;
        tempS->ps = new char[tempS->length + 1];
        strcpy(tempS->ps, this->ps);
        strcat(tempS->ps, strSrc.ps);
        return (*tempS);
}
const String& String::operator+(const char* str) {
```
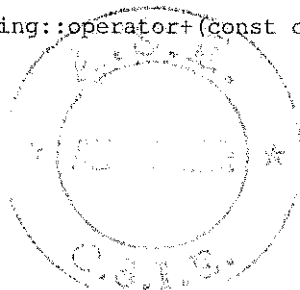
```
        String* tempS;
        tempS = new String();
        tempS->length = this->length + (int)strlen(str);
        if (tempS->ps != NULL) delete[] tempS->ps;
        tempS->ps = new char[tempS->length + 1];
        strcpy(tempS->ps, this->ps);
        strcat(tempS->ps, str);
        return (*tempS);
}
const String& String::operator=(const String& strSrc) {
        if (this != &strSrc) {
                this->length = strSrc.length;
                if (this->ps) delete[] this->ps;
                this->ps = new char[this->length + 1];
                strcpy(this->ps, strSrc.ps);
        }
        return *this;
}



void main()
{
        String s1("The first string ");
        String s2("and the second one. ");
        String s3("A string. ");

        s3 = s3 + "Plus a new string. ";
        s3 = s3 + s2.getString();
        cout << s3.getString() << endl;
}
```

a) **"A string. Plus a new string. and the second one."**
b) "The first string and the second one. Plus a new string. "
c) "Plus a new string. "
d) Runtime errors due to heap memory sharing
e) Compilation error message due to wrong implementation of the overloaded operators

15. In the following C++ application, how many times the operator **delete** is called?

```
#include <stdio.h>
#include <string.h>

class Student
{
public:
        int age;
        char* name;
public:
        Student(int v = 0, char* sname = NULL)
        {
                this->age = v;
                if (sname != NULL)
                {
                        this->name = new char[strlen(sname) + 1];
                        strcpy(this->name, sname);
                }
                else
                        this->name = NULL;
```
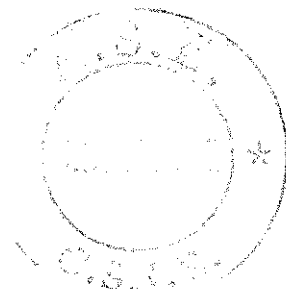
```
        }
        Student(const Student& s)
        {
                this->name = new char[strlen(s.name) + 1];
                strcpy(this->name, s.name);
                this->age = s.age;
        }
        Student operator+(Student s)
        {
                Student tstud;
                tstud.age = (this->age + s.age) / 2;
                tstud.name = new char[strlen(this->name) + strlen(s.name) + 1];
                strcpy(tstud.name, this->name);
                strcpy(tstud.name + strlen(this->name), s.name);

                return tstud;
        }
        ~Student()
        {
                if (this->name)
                        delete[] this->name;
        }
        void operator=(Student& s)
        {
                if (this->name)
                        delete[] this->name;
                this->name = new char[strlen(s.name) + 1];
                strcpy(this->name, s.name);
                this->age = s.age;
        }
};

void main()
{
        int age1 = 21, age2 = 20;
        Student s1(age1, "John");
        Student s2(age2, "James");
        s2 = s1 + s2;
        Student s3 = s1 + s2;
        Student s4;
        s4 = s3;
}
```

    a) **10 times**
    b) Compilation errors due do wrong call to copy constructor
    c) 9 times
    d) Compilation errors due do wrong call to operator +
    e) 11 times

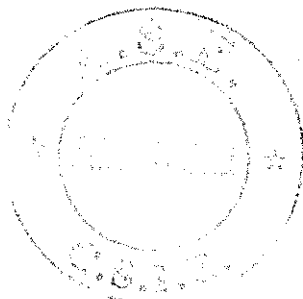   1. What will display the following Java code?

```
package eu.uni.jtest;

import java.util.HashMap;
import java.util.Map;

final class Url {
        private final String protocol, domain, uri;
        private final Integer port;
```

```java
    public Url(String protocol, String domain, Integer port, String uri) {
        this.protocol = consistencyCheck(protocol, "http");
        this.domain = domain;
        this.port = Integer.decode(consistencyCheck("" + port, "80"));
        this.uri = uri;
    }

    private static String consistencyCheck(String val, String expectedVal) {
        if (val.compareTo(expectedVal) != 0)
            throw new IllegalArgumentException(val + ": " + expectedVal);

        return val;
    }

    @Override
    public boolean equals(Object o) {
        if (o == this)
            return true;
        if (!(o instanceof Url))
            return false;
        Url url = (Url) o;
        return url.protocol.equals(protocol) && url.domain.equals(domain)
                && url.uri.equals(uri) && url.port.equals(port);
    }

}

public class MainTest2 {
    public static void main(String[] args) {
        Map<Url, String> m = new HashMap<>();

        Url k = new Url("http", "www.ase.ro", 80, "test");
        m.put(k, "First Url");
        String val = m.get(k);
        System.out.println("val = " + val);
    }
}
```

a) **val = First Url**
b) val = null
c) Nothing because of compilation error
d) Nothing because of runtime error
e) None of the existing answers

2. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.Arrays;

class LinearDataStructureContainer implements Cloneable {
    private Object[] elements;
    private int size = 0;
    private static final int DEFAULT_INITIAL_CAPACITY = 5;
    public LinearDataStructureContainer() {
        this.elements = new Object[DEFAULT_INITIAL_CAPACITY];
    }
```
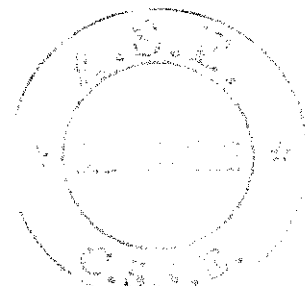
```java
        public void push(Object e) {
                ensureCapacity();
                elements[size++] = e;
        }
        public Object pop() throws Exception {
                if (size == 0)
                        throw new Exception();
                Object result = elements[--size];
                elements[size] = null; // Eliminate obsolete reference
                return result;
        }
        private void ensureCapacity() { // Ensure space for at least one more element.
                if (elements.length == size)
                        elements = Arrays.copyOf(elements, 2 * size + 1);
        }
        @Override protected Object clone() throws CloneNotSupportedException {
                try {
                LinearDataStructureContainer result = (LinearDataStructureContainer) super.clone();
                        result.elements = elements;
                        return result;
                } catch (CloneNotSupportedException e) {
                        throw new AssertionError();
                }
        }
        @Override public String toString() {
                StringBuffer r = new StringBuffer();
                r.append("["+elements[0]); int i = 1;
                for(Object o : elements) {
                        if(i > 1) r.append(", "+o); i++;
                }
                r.append("]");
                return r.toString();
        }
}

public class MainTest2 {
        public static void main(String[] args)
    {
                LinearDataStructureContainer ds1 = new LinearDataStructureContainer();
                ds1.push("1"); ds1.push("5"); ds1.push("9");
                try {
                LinearDataStructureContainer ds2 = (LinearDataStructureContainer) ds1.clone();
                String s = (String)ds1.pop();
System.out.println("ds1 = " + ds1.toString() +", ds2 = " + ds2.toString() + ", s = " + s);
                } catch (Exception e) {
                        e.printStackTrace();
                }
    }
}
```
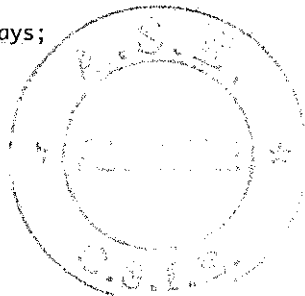
a) ds1 = [1, 5, null, null, null], ds2 = [1, 5, null, null, null], s = 9
b) ds1 = [1, 5, null, null, null], ds2 = [1, 5, 9, null, null], s = 9
c) Nothing because of compilation error
d) ds1 = [1, 5], ds2 = [1, 5, 9], s = 9
e) None of the existing answers

3. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.Arrays;
```

```java
    private final Date date;

    public Exam(String location, Date date) {
        this.location = location;
        this.date      = (Date) date.clone();
    }
    public String getLocation() {
        return location;
    }
    public Date getDate() {
        return date;
    }
        @Override
        public String toString() {
                return new String("location = "+location+", date = "+date);
        }
}

public class MainTest2 {
        public static void main(String[] args) {
                String location = new String("Bucharest");
                Date date = new Date();
                Exam e1 = new Exam(location, date);
                Exam e2 = new Exam(location, date);
                System.out.println("p1 equals p2 - " + (e1.equals(e2)));
                System.out.println("p1 == p2 - " + (e1 == e2));
        }
}
```

a) **p1 equals p2 - false \n p1 == p2 - false**
b) p1 equals p2 - true \n p1 == p2 – false
c) Nothing because of compilation error
d) Nothing because of runtime error
e) None of the existing answers

6. What will display the following Java code?
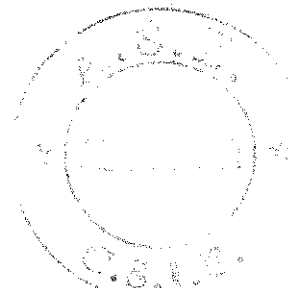
```java
package eu.uni.jtest;

class MyGen<T> {
    T var;
    void set(T t) {
        this.var = t;
    }
    T get() {
        return var;
    }
}

public class MainTest2 {
        public static void main(String[] args) {
                var m = new MyGen<Double>();
                m.set(2021.5);
                System.out.println("" + Integer.parseInt("" + m.get()));
        }
}
```

a) **Nothing because of runtime error**

```java
public class MainTest2 {
        public static void main(String... args) {
                int[] collectionArray = Arrays.stream(new int[]{1, -3, 7, 9, 5})
                                .filter(i -> i >= 5)
                                .map(i -> i * 2).toArray();

                int sum = Arrays.stream(collectionArray).map(i -> i).sum();
                System.out.printf("sum = %d", sum);
        }
}
```

a) **sum = 42**
b) sum = 43
c) Nothing because of compilation error
d) Nothing because of runtime error
e) None of the existing answers

4. What will display the following Java code?

```java
package eu.uni.jtest;

interface FIPrime {
        boolean checkPrime(int num);
}

public class MainTest2 {
        public static void main(String... args) {
                FIPrime myPrimeFunc = (num) -> {
                        boolean boolFlag = false;
                        for (var i = 2; i <= num / 2; ) {
                                if (num / i == 0) {
                                        boolFlag = true;
                                        break;
                                }
                                ++i;
                        }
                        return boolFlag;
                };

                int n = 301;
System.out.printf("Is the number n = %d prime? Yes = %b", n, myPrimeFunc.checkPrime(301));
        }
}
```

a) **Is the number n = 301 prime? Yes = false**
b) Is the number n = 301 prime? Yes = true
c) Nothing because of compilation error
d) Nothing because of runtime error
e) None of the existing answers

5. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.Date;

class Exam {
    private final String location;
```

b) 2021.5
c) 2021
d) Nothing because of compilation error
e) None of the existing answers

7. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.List;
import java.util.LinkedList;

public class MainTest2 {
    public static void main(String[] args) {
        List<Double> doubleLinkedList = new LinkedList<Double>();
        doubleLinkedList.add(991.5); doubleLinkedList.add(2021.0);

        for (Double d : doubleLinkedList) {
            System.out.print(d + " ");
        }
        System.out.print(" # ");
        doubleLinkedList.remove(1);
        doubleLinkedList.stream().forEach(System.out::print);

        doubleLinkedList.add(991d); doubleLinkedList.add(2022d);
        doubleLinkedList.add(1, 2018.7);

        System.out.print(" # ");
        System.out.print(" " + doubleLinkedList.get(1));
        System.out.print(" " + doubleLinkedList.indexOf(2));
        System.out.print(" " + doubleLinkedList.remove(3));
        System.out.print(" # ");

        doubleLinkedList.stream().forEach(x -> System.out.printf("%s; ", x));
    }
}
```

a) 991.5 2021.0 # 991.5 # 2018.7 -1 2022.0 # 991.5; 2018.7; 991.0;
b) Nothing because of compilation error
c) 991.5 2021.0 # 2021.0 # 2018.7 -1 2022.0 # 991.5; 2018.7; 991.0;
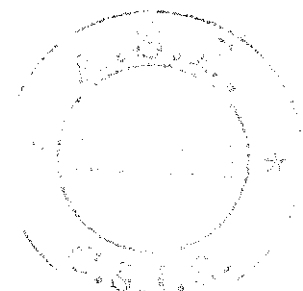d) Nothing because of runtime error
e) None of the existing answers

8. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.List;
import java.util.ArrayList;

public class MainTest2 {
    public static void main(String[] args) {
        List<Integer> bits = new ArrayList<Integer>();
        bits.add(2); bits.add(2); bits.add(4);
        var value = 0;
        for(var i = 0; i < bits.size(); i++)
            value ^= bits.get(i);

        System.out.printf("value = %d", value);
```

```
        }
}
```

a) 4
b) Nothing because of runtime error
c) Nothing because of compilation error
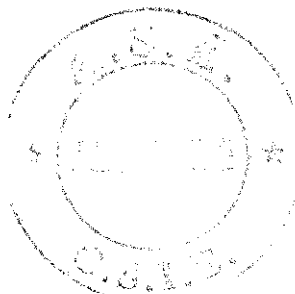**d) 5**
e) None of the existing answers

9. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.Arrays;
import java.util.List;

public class MainTest2 {
    public static void main(String[] args)
    {
        List<Integer> numbers = Arrays.asList(100, 15, 30, 40);
        int factor = 5;

        System.out.println(
                numbers.stream().filter(number -> number % 3 == 0)
                .mapToInt(e -> e * factor).sum());
    }
}
```

a) 225
b) Nothing because of compilation error
c) 280
d) Nothing because of runtime error
e) None of the existing answers

10. What will display the following Java code, if the given input in console is "strike" without quotes?

```java
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainTest2 {
    public static void main(String[] args)
    {
        String str = "";
        BufferedReader obj = new BufferedReader(new InputStreamReader(System.in));
        do {
            try {
                str = (String) obj.readLine();
            } catch (IOException e) {
                e.printStackTrace();
            }
            System.out.print(str);
        } while(!str.equals("strike"));
    }
}
```

a) strike
b) Nothing because of compilation error
c) Hello strike
d) Nothing because of runtime error
e) None of the existing answers

11. What will display the following Java code if run within an empty directory/folder?

```java
package eu.uni.jtest;

import java.io.File;
import java.io.IOException;

public class MainTest2 {
    public static void main(String[] args)
    {
        String name = null;
        File file = null;
        try {
                file = new File("exam.txt", name);
        } catch(Exception ioe) {

        }
        if(file == null || file.exists())
                System.out.print("Exp01");
        else
                System.out.print("Exp02");
    }
}
```

a) Exp01
b) compilation error
c) Exp02
d) Runtime error
e) None of the existing answers

12. What will display the following Java code?
```java
package eu.uni.jtest;

interface I {
        public default void f() {
                System.out.println("This is a default method within interface");
        }
}
abstract class A implements I {
    private int i = 207;
}
class B extends A {
    private int i = 133;

        @Override
        public void f() {
                System.out.println("i = " + this.i);
        }
}
public class MainTest2
```
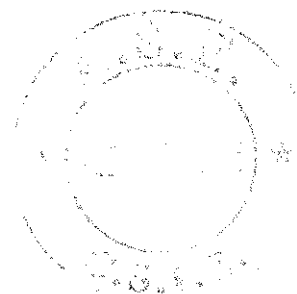
```
{
    public static void main(String[] args) {
        I a = new B();
        a.f();
    }
}
```

    a) 133
    b) compilation error
    c) "This is a default method within interface" - text without quotes
    d) runtime error

13. What will display the following Java code?

```
package eu.uni.jtest;

class A {
        public A() {
                System.out.print(" # Class A Constr.");
        }
}

class B extends A {
        public B() {
                System.out.print(" # Class B Constr.");
        }
}

class C extends B {
        private int x = 0;
        public C() {
                System.out.print(" # Class C Constr.");
        }

        public C(C c) {
                System.out.print(" # Class C Copy Constr.");
                this.x = c.x;
        }
}

public class MainTest2 {
        public static void main(String[] args) {
                C c1 = new C();
                C c2 = new C(c1);
                c1.toString(); c2.toString();
        }
}
```
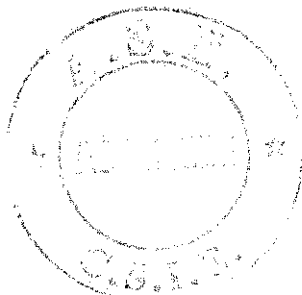
    a) # Class A Constr. # Class B Constr. # Class C Constr. # Class A Constr. # Class B Constr. # Class C Copy Constr.
    b) compilation error
    c) # Class A Constr. # Class B Constr. # Class C Constr. # Class C Copy Constr.
    d) runtime error
    e) None of the existing answers

14. How will be displayed the "car.txt" in hex file after running the following Java code?

```java
package eu.uni.jtest;

import java.io.DataOutputStream;
import java.io.FileOutputStream;
import java.io.IOException;

class Car {
        private int weight = 0;
        private String type = "";
        private String color = "";

        public Car(int weight, String type, String color){
                this.weight = weight; this.type = type; this.color = color;
        }
        public Integer getWeight() { return weight;}
        public void setWeight(Integer weight) { this.weight = weight; }
        public String getType() { return type; }
        public String getColor() { return color; }
        public void setColor(String color) { this.color = color; }
        public String toString() {
                return "Car{" + "color='" + color + "'"
                        + ", type = '" + type + "', weight=" + weight + '}';
        }
}

public class MainTest2 {
        public static void main(String[] args)
    {
                try (FileOutputStream fos = new FileOutputStream("car.txt");
                            DataOutputStream out = new DataOutputStream(fos);) {

                        Car c = new Car(1024, "Audi A4", "black");
                        out.writeUTF("" + c.getWeight());
                        out.writeUTF(c.getType());
                        out.writeUTF(c.getColor());

                } catch (IOException e) {
                        e.printStackTrace();
                }

    }
}
```
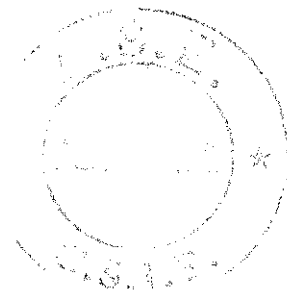
a. **00 04 31 30 32 34 00 07 41 75 64 69 20 41 34 00 05 62 6C 61 63 6B**

b. 00 04 31 30 32 34 00 07 41 75 64 69 20 41 34 00 05 62 6C 61 63 6B 0D 0A

c. 00 04 31 30 32 34 00 07 41 75 64 69 20 41 34 00 05 62 6C 61 63 6B 0A

d. Runtime error

e. None of the existing answers

15. What will display the following Java code?

```java
package eu.uni.jtest;

import java.util.HashMap;
import java.util.Iterator;
import java.util.Set;

public class MainTest2 {
    public static void main(String[] args) {
        HashMap<String, Integer> hashMapPhoneAgenda = new HashMap<String, Integer>();
        hashMapPhoneAgenda.put("John", 783500);
        hashMapPhoneAgenda.put("Andrew", 235000);
        hashMapPhoneAgenda.put("Alex", 295600);

        Set<String> keys = hashMapPhoneAgenda.keySet();
        Iterator<String> it = keys.iterator();
        String K = it.next();
        for (; it.hasNext(); K = it.next()) {
        System.out.print("; Key = " + K + ", Value = " + hashMapPhoneAgenda.get(K));
        }
    }
}
```

a. **; Key = Alex, Value = 295600; Key = Andrew, Value = 235000**

b. ; Key = Alex, Value = 295600; Key = Andrew, Value = 235000; Key = John, Value =783500

c. Compilation error

d. Runtime error

e. None of the existing answers