UNIVERSITY EXAMINATIONS

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INTERACTIVE PROGRAMMING

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EXAMINERS

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Closed book examination

This examination paper consists of 32 pages and 2 rough work pages (pages i and ii)

GENERAL INSTRUCTIONS

Answer all the questions on the multiple choice answer sheet provided

Good luck and enjoy!

[Please turn the page]

1 The ___ folder in the Package Explorer of an Android application project contains amongst others the image, music and video files

(1) `src`
(2) `gen`
(3) `assets`
(4) `res`

2 The ____ folder in the Package Explorer of an Android application project contains the code source files.

(1) `gen`
(2) `src`
(3) `bin`
(4) `libs`

3 The ____ package in Java provides classes for performing arithmetic operations

(1) `java io`
(2) `java math`
(3) `java lang`
(4) `java util`

4 In an Android application the ___ class executes first in an application, regardless of where you physically place it within a project

(1) `StartActivity()`
(2) `MainActivity`
(3) `RunActivity()`
(4) `ExecuteActivity()`

5 The ___ data type is used to hold any single character

(1) single
(2) byte
(3) char

(4) bit

6 Locating and repairing errors in programs is part of the process of ___ a program

(1) interpreting
(2) compiling
(3) debugging
(4) executing

7. ___ are pieces of information that are passed to a method that will enable the method to perform its task

(1) Applets
(2) Arguments
(3) Data
(4) Objects

8 In Java, the reserved keyword ___ means that a method is accessible and usable even if no objects of the class exist

(1) `active`
(2) `undefined`
(3) `void`
(4) `static`

9 In the code below, the ____ identifies the access specifier

```
public static void main(String[] args)
  {
  String message = "First Java application",
  }
```

(1) `public`
(2) `static`
(3) `void`
(4) `String`

10 Which one of the following is a correct keyword used for handling exceptions in Java?

(1) `throw`

(2) `void`

(3) `Error`

(4) `try`

11 Which one of the following is **NOT** one of the components of a method header?

(1) Optional access specifier

(2) The return type for the method

(3) An identifier

(4) A constructor

12 The user entered the code below, but the value for `equal` stays "no", although `name2.substring(0 3))` is "Ann"

```
String name1,name2, equal,
name1 = "Ann",
name2 = "Anne";
if (name1==name2 substring(0,3))
{equal = "yes",}
else
{equal = "no",}
```

The above is an example of a(n) ___ error

(1) `logic`

(2) `syntax`

(3) `exception`

(4) `unchecked exception`

13 Indicate which one of the following line of code has a syntax **error**?

```
1 boolean outcome = IRUE,
2 int test1 = '1',
3 double solution = 1 234e2,
4 float budget = 1 23f,
5 long result = 123_456_789,
```

(1) Line 1

(2) Line 2

(3) Line 3

(4) Line 4

14 Study the code below and indicate what the value of `answer` will be

```
int A = 5,
double B = 10;
double answer = A / B,
```

(1) `0.5`

Reason. division of a value integer with a value of type double will always display the float value with the decimal value

(2) `0 0`

Reason division of a value of type integer with a value of type double will always display 0 0

(3) `0`

Reason division of a value of type integer with a value of type double will display only the truncated integer value without the decimal

(4) `2`

Reason: division of a value of type integer with a value of type double will display only the truncated integer value without the decimal

15. Which of the following declarations will render an **error**?

(1) `float total = (int)1 3,`

(2) `float total = (double)1 3,`

(3) `float total = 3,`

(4) `float total = (3);`

16 The following variables are declared

```
double celcius = 10 0,
double convert = 9 0/5,
double fahrenheit,
```

Which one of the following code will complete the above code and compile?

(1)
```
try{fahrenheit = celcius * convert + 32,}
catch(Exception e){}
```

(2)
```
try{fahrenheit = celcius * convert + 32,}
catch(){Exception e,}
```

(3)
```
try{fahrenheit = celcius * convert + 32,}
catch(e){Exception e,}
```

(4)
```
try{fahrenheit = celcius * convert + 32,}
catch(Exception){Exception = e,}
```

Study the incomplete code below and answer questions 17 to 19 that follow

```
static int val3 = 10,
static final int val4 = 5,

public static void main(String[] args) {

int val1, val2 = 3,
int total,

//---(i)---

//---(ii)---

//---(iii) ---

}

private static int sum(int val1, int val2) {
    return val1 + val2,
}

private static int sum(int val1, int val2, int val3) {
     return val1 + val2 + val3 + val4,
}

private static int sum(int val1, int val2, int val3, int val4) {
    return val1 + val2 + val3 + val4,
}
```

17. (i) The user enters the following code What will be the value of `total` after the code is executed?

```
total = sum(val1,val2,val3),
```

(1) 18

Reason Although `val1` is not initialised it is by default assigned the value of 0 as it is an integer

The first method `sum(int val1, int val2, int val3)` will be called, since there are three parameters in the calling function

(2) Although `val1` is not initialised it is by default assigned the value of 0 as it is an integer However the code will not compile as the calling function only passes the parameters for `val1, val2` and `val3` and the first method is referring to `val4`

(3) However the code will not compile as the calling function only passes the parameters for `val1, val2` and `val3` and the first method is referring to `val4`

(4) The code will not compile as `val1` is not initialised

18 (II) The user enters the following code What will be the value of `total` after the code is executed?

```
val1 = 4,
val3 = 20,
total = sum(val1,val3),
```

(1) `14`

Reason The code executes as there are no logic or syntax errors The first method of `sum` is called as the function `sum` has only two arguments The parameters passed to this function are. `val1 = 4` and `val3 = 10` as `val3` is declared `static`

(2) `24`

Reason The code executes as there are no logic or syntax errors The first method of `sum` is called as the function `sum` has only two arguments The parameters passed to this function are `val1 = 4` and `val3 = 20`

(3) The code will not compile as you cannot change the value of `val3` as it is declared as `static`

(4) The code will not compile as the function `sum(val1,val3)` is called, but there is only a method `sum (int val1, int val2)`

19 (III) The user enters the following code What will be the value of `total` after the code is executed?

```
val1 = 4,
val2 = 10,
val3 = 2,
val4 = 8,
total = sum(val1,val2, val3, val4);
```

(1) 21

Reason The code executes as there are no logic or syntax errors The third method of `sum` is called as the function `sum` has four arguments The parameters passed to this function are `val1 = 4, val2 = 10, val3 = 2` and `val4 = 5` as `val4` is declard as `final`

(2) 24

Reason The code executes as there are no logic or syntax errors The third method of `sum` is called as the function `sum` has four arguments The parameters passed to this function are `val1 = 4, val2 = 10, val3 = 2` and `val4 = 8`

(3) The code will not compile as both `val3` and `val4` are declared static values Their values cannot be changed in the code

(4) The code will not compile as `val4` is declared `final` The value of such a variable cannot be changed in the code

---

20 Study the code below and indicate will be the best types to declare the variables `pass` and `total`

```
total = (float) ((20 0/70) * 100),
if (total>=50) {pass=true,}
```

(1)
```
boolean pass = false;
float total,
```

(2)
```
boolean pass,
int total;
```

(3)
```
String pass = "false",
float total,
```

(4)
```
String pass = "false",
double total,
```

21. Study the code below and indicate what will the value be for `answer`

```
String answer = "",
int total = 50,
if (total >= 50) {answer = "Pass",}
   {answer = "Fail",}
```

(1) Nothing will be printed. There is no ELSE statement in the IF statement

(2) The value of `answer` will be "Pass" as `total` is greater than or equal to 50

(3) The value of `answer` will be "Fail" After the IF statement the next statement allocates "Fail" to `answer`

(4) The value of "PassFail" will be allocated to `answer` Initially `answer` will be allocated "Pass" and then in the second part of the statement the value of "Fail" is concatenated to the first value

22 Study the code below and indicate the best data types to declare the variables `test` and `name`

```
name = "John",
test = (20 0 + 40 + 50)/150 * 100,
```

(1)
```
String name,
int test,
```

(2)
```
String name,
float test;
```

(3)
```
String name,
double test,
```

(4)
```
string name,
num test,
```

23 Study the code below and indicate which of the following code **CANNOT** be used to create the method `calc`

```
boolean pass;
int examMark = 50,
int yearMark = 40,

pass = calc(examMark, yearMark),
```

(1)
```
private static boolean calc(double e, double y) {
boolean a = false,
double f = (e + y)/2,
if (f >= 50) {a=true,}
return a,
}
```

(2)
```
private static boolean calc(int e, int y) {
boolean a = false,
int f = (e + y)/2,
if (f < 50) {a=false,}
return a,
}
```

(3)
```
private static int calc(int e, int y) {
int f = (e + y)/2,
return f,
}
```

(4)
```
private static boolean calc(int e, int y) {
boolean pass,
int f = (e + y)/2,
if (f>=50){pass =true;}
else
{pass=false,}
return pass,
}
```

24. Which one of these is an **INCORRECT** array declaration?

(1) `int arr[] = new int[5],`

(2) `int [] arr = new int[5],`

(3) `int arr[],`
`arr = new int[5],`

(4) `int arr[],`
`arr[] = new int [5],`

Study the incomplete code below and answer questions 25 to 27 that follow

```
//declare arrays and allocate values to the arrays
String[] modules = new String[3],
String[] levels = new String[3];

modules[0] = "ICT1511",
modules[1] = "ICT2611",
modules[2] = "ICT3611",

levels[0] = "1";
levels[1] = "2",
levels[2] = "3",
```

25. Indicate which one of the following options can replace the array declarations and the 8 statements that are used to allocate values to arrays `modules` and `levels`

(1)
```
String[] modules = new String {"ICT1511","ICT2611","ICT3611"},
String[] levels = new String {"1","2","3"},
```

(2)
```
String[] modules = {"ICT1511","ICT2611","ICT3611"},
String[] levels = {"1","2","3"},
```

(3)
```
String[3] modules = {"ICT1511","ICT2611","ICT3611"},
String[3] levels = {"1","2","3"},
```

---

(4) `String[3] modules = new String {"ICT1511","ICT2611","ICT3611"},`
`String[3] levels = new String{"1","2","3"},`

26 Assume a String array `progMods` is declared correctly Indicate which one of the following code will correctly combine the two arrays `modules` and `levels` and initialise the array `progMods`

(1)
```
for (int i=0, i<2, i++){
        progMods[i] = modules[i] + " " + levels[i];
    }
```

(2)
```
for (int i=0, i=3, i++){
        progMods[i] = modules[i] + " " + levels[i],
    }
```

(3)
```
for (int i=4, i<0, i--){
        students[i] = names[i] + " " + surnames[i],
    }
```

```
for (int i=0, i=3, i--){
        progMods[i] = modules[i] + " " + levels[i],
    }
```

(4)
```
for (int i=0, i<3, i++){
        progMods[i] = modules[i] + " " + levels[i],
    }
```

27. Indicate which one of the following code will correctly calculate the length of the array `progMods`

(1) `int len = progMods length(),`

(2) `int len = progMods length,`

(3) `int len = length(progMods),`

(4) `int len = length progMods,`

28 Study the code below and indicate what the values will be for `day`, `hasMore` and `days` after the code has executed

```
boolean hasMore = true,
String[] daysOfWeek=
        {"mon","tue","wed","thu","fri","sat","sun"},
int day = daysOfWeek length -1;
String days = null,

while (hasMore)
{
    if (day==0) hasMore = false,
    days = days + daysOfWeek[day],
    day--,
}
```

(1) day: 0
hasMore false
days sun sat fri thu wed tue mon

(2) day -1
hasMore true
days sunsatfrithuwedtuemon

(3) day 0
hasMore false
days nullsunsatfrithuwedtue

(4) day: -1
hasMore: false
days nullsunsatfrithuwedtuemon

29 Study the code below and indicate what the value of `result` will be

```
double num[] = {5 7, 10 2, 11, 12 1};
double result = 0,

for (int i = 0; i < num length, i++)
    result = result + num[i],

result = finalResult(result),
}

private static double finalResult(double result) {
return result / 3,
}
```

(1) 13

(2) 13.0

(3) 39

(4) 39 0

30. Study the code below and indicate what the value of `num` will be

```
int num = 3,
int result = ++num * 8,
```

(1) 25
Reason. * has precidence thus
num * 8 = 3 * 8 = 24
++num = 25

(2) 32
Reason ++ has precidence thus
++num = 4
4 * 8 = 32

(3) 40
Reason· ++ has precidence thus
++num = 5
5 * 8 = 40

(4) 48

```
Reason  ++ has precidence thus
        ++num = 3 + 3 = 6
        6 * 8 = 48
```

The incomplete code below is used to create a class named `Student`.

The class has two constructors, the first constructor is an empty (no argument) constructor.

The second constructor accepts the student's details
name e g `Mary Baxtor`,
student number, e g `34800483`,
RSA id number in the format YYMMDDxxxxxxx, e g `9101050129089`
and the module code in the format MODYNxx, e g `ICT1511` where
MOD=module code e g `ICT`,
Y = year of offering, e g `1`,
N = NQF level, e g `5`

The class has further public and private methods

The public method `display` returns the student name, the birthday (DD Mon YY), the NQF level and the year of offering for the module

The private method `detNQF` determines the NQF level based on the module code

The private method `detYear` determines the year of offering based on the module code

The public method `getEmail` uses the student number that is passed to this class and generates an email address for the student The method returns a value of type `String` to the calling program

```
public class Student {
//instance variables
    String studName, studNum, studId, modCode,
    String bday, nqf,
    int level,
    static int numStudents = 0,

public Student() {
//empty constructor
}


public Student(String name, String studNum,
               String id, String modCode) {
    numStudents++,
    //(1)------
    bday = getBday(studId);
    nqf = getNQF(modCode),
    level = getLevel(modCode),
}

private int getLevel(String modCode) {
    int level = Integer parseInt(modCode substring(3, 4)),
    return level,
}

private String getNQF(String modCode) {
    String nqf = modCode substring(4,5),
    return nqf,
}

private String getBday(String id) {
    String day = id substring(4,6),
    String month = id substring(2, 4),
    month = detMonth(month);
    String year = id substring(0,2),
    return day+" " + month+ " " + year,
}

private String detMonth(String mon) {
    //(11)-----
```

```
        return month,
    }

    public String display(){
        return this studName + " " + bday + " NQF  " +
        nqf + " LEVEL  " + level,
    }

    public String getEmail(String studnum) {
        return studnum +"@mylife unisa ac za",
    }

    }
```

Answer questions 31 to 37 that follow

31 The purpose of the variable `numStudents` is to keep track of the number of ___

(1) characters in the `studNum`

(2) modules that the specific student is enrolled

(3) instances of `Student`

(4) students enrolled in a a specific module

32 A `Student` object has access to ___ variables in the non-static functions of the `Student` class

(1)
```
String studName, studNum, studId, modCode,
```

(2)
```
String studName, studNum, studId, modCode,
String bday, nqf,
int level,
```

(3)
```
String bday, nqf,
int level,
static int numStudents = 0,
```

(4) `String studName, studNum, studId, modCode,`
`String bday, nqf,`
`int level,`
`static int numStudents = 0,`

33 (i). Indicate which of the following will correctly link the variables for the second constructor to the instance variables

(1) `name = StudName,`
`studNum = studNum,`
`id = studId;`
`modCode = modCode,`

(2) `name = this StudName,`
`studNum = this studNum,`
`id = this studId,`
`modCode = this modCode,`

(3) `this studName = name,`
`this.studNum = studNum,`
`this.studId = id,`
`this modCode = modCode;`

(4) None of the above You cannot have the same instance variable names as the local variable names

34. The method `getBDay` calls a method `detMonth`

(ii) Indicate which of the following code **CANNOT** be used in the method `detMonth` to determine the specific month

(1)
```
String[] months =
          {"JAN","FEB","MAR", "APR", "MAY","JUN",
           "JUL","AUG","SEP","OCT","NOV","DEC"},
String month = months[Integer valueOf(mon)-1],
```

(2)
```
String[] months =
          {"","JAN","FEB","MAR", "APR", "MAY","JUN",
           "JUL","AUG","SEP","OCT","NOV","DEC"},
String month = months[Integer valueOf(mon)],
```

(3)
```
String[] months =
          {"JAN","FEB","MAR", "APR", "MAY","JUN",
           "JUL","AUG","SEP","OCT","NOV","DEC",""},
String month = months[Integer.valueOf(mon)-1],
```

(4)
```
String[] months =
          {"","JAN","FEB","MAR", "APR", "MAY","JUN",
           "JUL","AUG","SEP","OCT","NOV","DEC",""},
String month = months[Integer valueOf(mon)+1],
```

35 Indicate which one of the following **will fail** to create an instance of the class `Student`

(1)
```
Student stud = new Student(),
```

(2)
```
Student stud = new Student("Mary Lang", "34800483",
                           "9212010129089","ICT1511"),
```

(3)
```
Student stud = new Student("Mary Lang", "34800483",
                           "921201","ICT1511"),
```

(4)
```
Student stud = new Student(null,null,null,null),
```

36. Indicate the value of `display` after the following code is executed.

```
String studName = "Mary Lang",
String studNum = "34800483",
String studId = "9112040129089",
String studMod = "ICT1511",

Student stud = new Student(studName,studNum, studId, studMod),

int display = stud numStudents,
```

(1) Error message `display` must be of type `String`

(2) `Mary Lang 04 DEC 91 NQF 5 LEVEL· 1`

(3) `Mary Lang 04 DEC 91 NQF 5 LEVEL· 1`
`34800483@mylife unisa ac.za`

(4) `1`

37 Indicate the value of `display` after the following code is executed

```
String studName = "Susan Seopa",
String studNum = "50607080",
String studId = "940510",
String studMod = "ICT1512",

Student stud = new Student(studName,studNum, studId, studMod),
studNum = studNum + String valueOf(stud numStudents),
String display = stud getEmail(studNum),
```

(1) Error message. `studNum` must be 13 characters long

(2) `50607080@mylife.unisa.ac za`

(3) `50607081@mylife.unisa ac.za`

(4) `506070801@mylife unisa ac za`

38 Study the code below and indicate the value of `car` after the code is executed

```
String[] autoGermany =
    {"Audi","BMW","Mercedes-Benz","Opel","Porsche",
        "Volkswagen"},
int car = Arrays binarySearch(autoGermany, "BMW"),
```

(1) 0

(2) 1

(3) 2

(4) None of the above You cannot do a binary search on an array of which the entries are of type `String`.

39 Study the code below and indicate the value of `cars` after the code has executed

```
String[] autoGermany =
         {"Audi","BMW","Mercedes-Benz","Opel","Porsche",
         "Volkswagen"},
String cars = new String(autoGermany),
```

(1) `BMWMercedes-BenzOpelPorscheVolkswagen`

(2) `BMW Mercedes-Benz Opel Porsche Volkswagen`

(3) `'BMW' 'Mercedes-Benz' 'Opel' 'Porsche' 'Volkswagen'`

(4) Error message `error incompatible types`
Reason. you cannot create a new type `String` from type `String[]`

40 Study the code below and indicate what the value of `place` will be after the execution of the code·

```
String id = "ben@benmotors co za",
int place = id indexOf(" co za"),
```

(1) Error message You can only determine the index of one element not of a string

(2) 13

(3) 14

(4) 18

41 Study the code below and indicate the value of `message` after the code is executed

```
double  wordsPerMinute = 280,

String wpm = wordsPerMinute >= 250 ?
             "above average" "below average",

wpm toUpperCase(),

String message = "you are reading " + wpm,
```

(1) you are reading above average

(2) you are reading ABOVE AVERAGE

(3) YOU ARE READING ABOVE AVERAGE

(4) YOU ARE READING 250

42. Which one of the following `Figure` class implementations is **NOT** valid for the lines of code below

```
Figure fig1 = new Figure(),
Figure fig2 = new Figure(10 0, 20 5),
double area1 = fig1 getArea(),
double area2 = fig2 getArea(),
```

(1)
```
public class Figure {
double v1, v2,
public Figure(double val1, double val2){
    this.v1 = val1,
    this v2 = val2,
}
public Figure() { }

public double getArea() {
    return v1 * v2,
}
}
```

(2)
```
public class Figure {
double v1, v2,
public Figure(double val1, double val2){
    v1 = val1,
    v2 = val2,
}

public Figure() { }

public double getArea() {
    return v1 * v2,
}
}
```

(3)
```
public class Figure {
double v1, v2;

public Figure(double val1, double val2){
    v1 = val1,
    v2 = val2,
}

public Figure() {
        v1 = 0,
        v2 = 0,
}

public double getArea() {
```

```
        return v1 * v2,
    }
    }
```

(4)
```
public class Figure {
double v1, v2,

public Figure(double val1, double val2){
    v1 = val1,
    v2 = val2,
}

public Figure() { }

public double getArea() {
    return val1 * val2,
}
}
```

43 Indicate which one of the following options will correctly sort the array names and display the array in descending order

```
String display = "",
String[] names = new String[10],

names[0] = "John",
names[1] = "Peter",
names[2] = "Ben",
names[3] = "Adam",
```

(1)
```
Arrays sort(names,Collections reverseOrder()),
for (int i = 0, i < names length-1; i++)
    display = display + names[i] + " ",
```

(2)
```
Arrays sort(names),
for (int i = names length-1, i >= 0, i--)
    display = display + names[i] + " ",
```

(3)
```
names sort(),
for (int i = names length-1, i >= 0, i--)
    display = display + names[i] + " ";
```

(4) Not one of the above The compiler will give a `NullPointerException` error as some elements in the array have `NULL` values

44 The user entered the following code, but received an error message when trying to execute the code

```
int[] numbers = {1,2,4,5,3},
int sum = 0,

for (int i=1, i < 10, i++){
  sum = sum + numbers[i],
}//end for
```

Indicate which one of the following codes the user can use that will intercept the error without crashing the program·

(1)
```
boolean error = false,
int[] numbers = {1,2,4,5,3},
int sum = 0,

for (int i=1; i < 10, i++){
try{sum = sum + numbers[i];
    }exception (Catch e){error=true,}
}//end for
```

(2)
```
boolean error = false,
int[] numbers = {1,2,4,5,3},
int sum = 0,

for (int i=1, i < 10, i++){
try{sum = sum + numbers[i];
    } catch (error = true,)
}//end for
```

(3)
```
boolean error = false,
int[] numbers = {1,2,4,5,3};
int sum = 0,

for (int i=1, i < 10, i++){
try{sum = sum + numbers[i],
    }catch (Exception e){error=true,}
}//end for
```

(4)
```
boolean error = false,
int[] numbers = {1,2,4,5,3},
int sum = 0,

for (int i=1, i < 10, i++){
Exception try{sum = sum + numbers[i],
    }catch (Exception e){error=true,}
}//end for
```

Study the code below and answer questions 45 to 46

```
double test = get_user_input,
String symbol, message="",
String[] messages = {"You will have to work harder",
"Almost there keep up the hard work","Well done!"},

if (test < 40 ) {symbol = "F",}
else if (test < 50) {symbol = "E", message = messages[1],}
else if (test < 60) {symbol = "D",}
else if (test < 70) {symbol = "C", message = messages[2],}
else if (test < 80) {symbol = "B",}
else if (test < 90) {symbol = "A", message = messages[1],}
else
symbol = "A++",
String output = symbol + " " + message,
```

45 What will the final value of `output` be if `get_user_input = 64`

(1) `D Well done!`

(2) `D Almost there keep up the hard work`

(3) `C Almost there keep up the hard work`

(4) `C Well done!`

46 Indicate which one of the following code can replace the above `if else` .. statements and still render the same results

(1)
```
switch(test){
      case  40   {symbol = "F",} break,
      case  50   {symbol = "E"; message = messages[1],} break,
      case  60   {symbol = "D",} break;
      case  70   {symbol = "C", message = messages[2],} break,
      case  80   {symbol = "B",} break,
      case  90   {symbol = "A", message = messages[1],} break,
      default  symbol = "A++",
  }
```

(2)
```
switch(test){
      case < 40   {symbol = "F",} break,
      case < 50   {symbol = "E"; message = messages[1],} break,
      case < 60   {symbol = "D",} break,
      case < 70   {symbol = "C", message = messages[2],} break,
      case < 80   {symbol = "B",} break,
      case < 90   {symbol = "A", message = messages[1],} break,
      default  symbol = "A++";
  }
```

(3)
```
switch(test){
      case in [0  39]   {symbol = "F",} break,
      case in [40  49]   {symbol = "E", message = messages[1],} break,
      case in [50  59]   {symbol = "D",} break,
      case in [60  69]   {symbol = "C"; message = messages[2],} break,
      case in [70. 79   {symbol = "B",} break,
```

```
        case in [80  89]   {symbol = "A", message = messages[1],} break,
        default  symbol = "A++",
    }
```

(4) None of the above

Study the code below and answer questions 47 to 48 that follow.

The class User is implemented as:

```
public class User{
 private String username,
 private String password,

 public User(String un, String pd){
       username = un,
       password = pd,
   }

 public  String toString(){
       return username +  "  " + password,
   }
}
```

The following lines of code use the User class:

```
User[] userArray = new User[]
        {new User("Ann","password"),
         new User("Ben","12345"),
         new User("Cathy", "Q18jpL")},

BufferedWriter bw = new BufferedWriter
      (new FileWriter(new File ("users txt"))),

for(int i = 0; i < userArray length, i++){
    bw write(userArray[i] toString()),
 }
bw close(),
```

47 What will be the output after executing the lines of code given above?

(1) `users txt` will contain the following

```
Ann  passwordBen  12345Cathy· Q18jpL
```

(2) `users txt` will contain the following

```
Ann  password
Ben  12345
Cathy  Q18jpL
```

(3) `users txt` will contain the following

```
username  password
username  12345
username  Q18jpL
```

(4) `users txt` will be empty since the file has not been opened before attempting to write

48 Code fragments that read from and write to files need to handle at least the checked exceptions to avoid compiler errors Which one of the following options will handle the checked exceptions in the code above?

(1)
```
public void writeToFile() throws FileException{
      User[] userArray = new User[]
           {new User("Ann","password"),
            new User("Ben","12345"),
            new User("Cathy", "Q18jpL")},
      BufferedWriter bw =
      new BufferedWriter(new FileWriter(new File ("users.txt")));
      for(int i = 0, i < userArray length, i++){
        bw write(userArray[i] toString()),
      }
      bw close(),
}
```

(2)
```
public void writeToFile() throws FileNotFoundException{
      User[] userArray = new User[]
      {new User("Ann","password"),
```

```
        new  User("Ben","12345"),
        new User("Cathy", "Q18jpL")},
        BufferedWriter bw =
        new BufferedWriter(new FileWriter(new File ("users txt"))),
        for(int i = 0, i < userArray length, i++){
          bw write(userArray[i] toString()),
        }
        bw close(),
      }
```

(3)
```
      public void writeToFile() throws FileException, IOException{
        User[] userArray = new User[]
        {new User("Ann","password"),
         new User("Ben","12345"),
         new User("Cathy", "Q18jpL")},
        BufferedWriter bw =
        new BufferedWriter(new FileWriter(new File ("users.txt"))),
        for(int i = 0, i < userArray length, i++){
          bw write(userArray[i] toString()),
        }
        bw close(),
      }
```

(4)
```
      public void writeToFile() throws IOException{
        User[] userArray = new User[]
        {new User("Ann","password"),
        new  User("Ben","12345"),
        new User("Cathy", "Q18jpL")};
        BufferedWriter bw =
        new BufferedWriter(new FileWriter(new File ("users txt"))),
        for(int i = 0, i < userArray length, i++){
          bw write(userArray[i] toString()),
        }
        bw close(),
      }
```

49 Which one of the following statements is **FALSE** regarding the programming language JAVA?

Java is a(n) ___ computer programming language

(1) object-oriented
(2) multi-purpose
(3) class-based
(4) operating system dependent

50 Which of the following is an **INVALID** variable name in Java?

(1) `String 1PUBLIC = "Java",`
(2) `String PUBLIC = "Java",`
(3) `String _PUBLIC = "Java",`
(4) `String PUBLIC_$ = "Java",`

[TOTAL: 50]

Additional page for rough work Do not remove from the examination script.

Additional page for rough work Do not remove from the examination script

UNIVERSITY OF SOUTH AFRICA UNISA university of south africa UNIVERSITEIT VAN SUID-AFRIKA

EXAMINATION MARK READING SHEET EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g PSY100-X
STUDIE EENHEID bv PSY100 X

1

PAPER NUMBER
VRAESTELNOMMER

2

INITIALS AND SURNAME
VOORLETTERS EN VAN

3

DATE OF EXAMINATION
DATUM VAN EKSAMEN

4

EXAMINATION CENTRE (E G PRETORIA)
EKSAMENSENTRUM (BV PRETORIA)

5

STUDENT NUMBER
STUDENTENOMMER

6

7

UNIQUE PAPER NO
UNIEKE VRAESTEL NR

8

9

For use by examination invigilator

Vir gebruik deur eksamenopsiener

IMPORTANT

1. USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4. ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6. CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7. CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8. DO NOT FOLD

BELANGRIK

1. GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
2. MERK AS VOLG
3. KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4. VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5. KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6. KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7. MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8. MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5