

**QUESTION PAPER**

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| 2024 TEST 2 BUFFALO CITY CAMPUS    DEPARTMENT : Dept of Business and Application Development  SUBJECT : DEVELOPMENT SOFTWARE 1 MAINSTREAM  : DEVELOPMENT SOFTWARE 1 EXTENDED YEAR 2    SUBJECT CODE : DES15W0, DEV15W0    EXAMINER/S : MS S TWETWA DUBE, DR E CHINDENGA, MS S VIJAYALEKSHMI & MR F ELEGBELEYE    MODERATOR : MR S NIKANI    DURATION : 90 minutes    MARKS : 50 |
| TEST INSTRUCTIONS    This test is for marks and test conditions for a closed book test apply.  During the test:  All cellphones must be switched off and placed out of reach.  You may not consult notes, slides, videos etc.; you may not photograph or record the test; you may not communicate with anyone in any way; you may not use email, cell phones, etc.    Make sure you answer all questions.  YOU HAVE 60 MINUTES TO ANSWER ALL QUESTIONS  You may not leave the venue until the 60 minutes have elapsed.    FOR EACH QUESTION CHOOSE ONE ANSWER ONLY.  Place an X in the box next to the correct answer. |

**DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO**

**SECTION A [15 MARKS]**

**A1. ( 2 marks )**

Given that cost is a numeric variable, which of the following is a valid pseudocode instruction to test if the cost is over R100-00

a. IF cost > 100.00 THEN

b. IF cost > R100-00 THEN

c. IF cost >= 100 THEN

d. None of these

**A2. ( 2 marks )**

Given that cost is a numeric variable, which of the following is not a valid pseudocode instruction.

a. cost = R200

b. cost = 200-00

c. cost = 200,00

d. All of these

**A3. ( 2 marks )**

Evaluate 12 MOD 6 ^ 2 <> 3 \* 6 - 4 MOD 2

a. True

b. False

**A4. ( 2 marks )**

What is displayed on the screen by the following code if SUM is 12 and NUM is 6

IF SUM - NUM > 6 + NUM THEN

SUM = SUM \* 2

ENDIF

DISPLAY SUM

a. 8

b. 12

c. NUM\*2

d. SUM

**A5. ( 2 marks )**

What value is in AVERAGE after this instruction is executed, if MARK1 is 85 and MARK2 is 65

AVERAGE = MARK1 + MARK 2 / 2

a. 138

b. 117.5

c. 106.5

d. None of these

**A6. ( 3 marks )**

What value does the following code display on the screen when the input is 40?

BEGIN

DECLARE temperature AS real

ACCEPT temperature

IF temperature > 35.5 THEN

DISPLAY “I am going to the Gonubie beach”

ELSE

DISPLAY “I’ll be staying at home”

ENDIF

END

a. I AM GOING TO THE GONUBIE BEACH

b. I’ll staying at home

c. I’LL STAYING AT HOME

d. I am going to the Gonubie beach

**A7. ( 3 marks )**

What is displayed on the screen by the following code if RED is input:

DECLARE MSG, COLOUR AS STRING

ACCEPT COLOUR

IF COLOUR = “RED” THEN

MSG = “YES”

ENDIF

MSG = “NO”

DISPLAY “COLOUR IS RED “ MSG

a. COLOUR IS RED YES

b. COLOUR IS RED NO

c. COLOUR IS YES

d. None of these

**SECTION B [15 MARKS]**

**B1. (4 marks)**

Below are snippets of pseudocode that contain syntax errors. Review the provided code snippets and correct the errors to ensure they run correctly.

Pay attention to the structure, syntax, and logical flow of the pseudocode.

BEGIN

DECLARE num1 as Integer

DECLARE num2 as Integer

SET num1 = 30

SET num2 = 15

IF num1 > num2 THEN

PRINT "num1 is greater than num2"

END

IF num1 < num2

PRINT "num1 is less than num2"

END

IF num1 = num2

PRINT "num1 is equal to num2"

END

END

**B2.**  (**11 marks)**

DES15P0 student has been asked to design a program to calculate the tax and the net salary of all the WSU employee. The tax is calculated according to the following table:

|  |  |
| --- | --- |
| **Salary** | **Tax** |
| From R 0 to R 20000 | 15% of the amount |
| From R 20001 to R 65000 | R3000 + 17% of amount above 20000 |
| From R 65001 to R 90000 | R10650 + 23% of amount above 65000 |
| From R 90001 to R 150000 | R 16400 + 30% of amount above 90000 |
| Over R150000 | R 34400 + 42% of amount above 150000 |

The program should accept the salary of all the University employee and then calculate and display the tax and the net salary (i.e. the salary after the tax has been deducted).

**Sisipho has started written the following pseudocode (which is all correct so far):**

*BEGIN*

*DECLARE salary, tax, net AS REAL*

*DISPLAY “Please input salary of employee”*

*ACCEPT salary*

*IF salary > 150000 THEN*

*tax = 34400 + (0.42 \* (salary – 150000))*

*END IF*

**B1*. Write the rest of the instructions needed to complete the program as specified.***

**SECTION C [20 MARKS]**

King Phalo Hotel offers 3 (Three) types of rooms. Each room type has a different price per day. They have requested you as an ICT student to develop a program that will allow them to capture client details and room bookings. The room types they offer are listed below:

* Room Type 1: Standard
* Room Type 2: Executive
* Room Type 3: Presidential

The program should accept the name of the client, the number of days, and the type of room the client wants to book (use 1, 2, 3 for the room type).

Clients are charged as follows based on the room type, they have booked:

* Room type 1: R150 per day
* Room Type 2: R250 per day
* Room Type 3: R400 per day

If a client enters a Room type that is not (1, 2, 3 ), display “Invalid Room type selected”.

The program should calculate and display the total amount the client would pay for the days booked.

**C1**. Draw an IPO chart (5 Marks)

**C2.** Draw Flowchart to solve the above problem (15 Marks)

**End [50 TOTAL MARKS]**