



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2018/2019

FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATIONS FOR BACHELOR OF
HEALTH RECORDS AND INFORMATION MANAGEMENT

HPR 3150: INTRODUCTION TO COMPUTER SCIENCE AND PROGRAMMING

DATE: SEPTEMBER 2019

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Define the following terms
- (i) Variables (2 marks)
 - (ii) Identifier (2 marks)
 - (iii) Reserve words (2 marks)
 - (iv) String (2 marks)
- b) Distinguish between
- (i) Local and global variables (2 marks)
 - (ii) Compiler and interpreter (2 marks)
 - (iii) Procedural and non-procedural (2 marks)
 - (iv) High level and low level languages (2 marks)
 - (v) Fixed and stored program computer (2 marks)
- c) Describe the following utility programs
- (i) Loader (2 marks)
 - (ii) Linker (2 marks)
- d) Discuss the following computer languages/generations
- (i) Object oriented languages. (2 marks)
 - (ii) Web scripting languages (2 marks)
 - (iii) First generation language (1GL) (2 marks)
 - (iv) Third generation languages (3GL) (2 marks)

QUESTION TWO (20 MARKS)

- a) Define the following terms
- (i) Computer program (2 marks)
 - (ii) Computer language (2 marks)
 - (iii) Language syntax
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- b) Explain basic elements in computer program. (5 marks)
- c) Explain the output of the following program when 23 is entered as output. (4 marks)

```

Main ()
{
Int age;
Cout<<'how old are you: ';
Cin>>age;
Cout<<'in 10 years, you will be '<<age+10<<','\n';
}

```

- d) Distinguish between
- (i) Source program and object code (2 marks)
 - (ii) Compiler and interpreter (2 marks)
- e) Write full meaning of the following programming language acronyms.
- (i) COBOL (1 mark)
 - (ii) FORTRAN (1 mark)

QUESTION THREE (20 MARKS)

- a) Discuss stages of program development in procedural/structured programming. (12 marks)
- b) Distinguish between monolithic and modular programming. (4 marks)
- c) Explain the process and output the following program when 22, and 55 are entered in that order. (4 marks)

```

Main ()
{
Int m, n;
Cout<<'enter two intergers: ';
Cin>>m>>n;
If(m>n) cout<<m<<end;
}

```

QUESTION FOUR (20 MARKS)

- a) Define program control structure. (2 marks)
- b) Discuss main program control structure. (6 marks)
- c) Given the formula to calculate area of a circle is $A=\pi r^2$.

Analyze the formulae (2 marks)

Using flowchart develop a design for a program to calculate area of circle. (3 marks)

Using C++ write a program code to calculate area of circle. (5 marks)

- d) Briefly describe logical errors in programming. (2 marks)

QUESTION FIVE (20 MARKS)

- a) Using diagram discuss Von Neuman computer architecture. (8 marks)
- b) Explain fetch execute cycle. (4 marks)
- c) In a given situation the value of "A" is given by "B+C" if $C < 10$, Otherwise "A=B-C".
Analyze the formulae. (2 marks)
Use pseudo code to develop a design for a program to calculate the value of "A". (3 marks)
Use C++ language to write a program codes to calculate value of "A". (5 marks)