

**NYAMAGABE DISTRICT**

**ADVANCED LEVEL EXAMINATION FOR SENIOR FIVE**

**SUBJECT: COMPUTER SCIENCE**

**COMBINATIONS: MATHS-COMPUTER SCIENCE-ECONOMICS (MCE)**

**MATHEMATICS-PHYSICS-COMPUTER SCIENCE (MPC)**

**DURATION: 3HOURS**

**INSTRUCTIONS:**

1. Write your names and index number on the answer sheet.
2. Do not open this question paper until you are told to do so.
3. This paper has **THREE** sections **A**, **B**, and **C**.

**SECTION A:** This section is Compulsory. **(55 marks)**

**SECTION B:** Attempt any **three** questions. **(30 marks)**

**SECTION C:** Attempt **Only one** question. **(15marks)**

4. Use only **blue** or **black** pen and pencil.

**SECTION A: Attempt ALL questions of this section (55marks)**

1. Distinguish a computer program and computer programming. ( 6 marks)
2. List four examples of programming languages. ( 4 marks)
3. What are the features of Smartphone? (3marks)
4. Name the parts on the figure below (3marks)



5. Name the Operating systems represented by the following icons. (2marks)



6. Write an algorithm which receives a number and informs the user whether it is positive or negative. ( 5marks)
7. Give syntax of declaring a structure. (3marks)

**8. Convert the following to decimal number: (6 marks)**

i.  $3DE_{16}$

ii.  $345_8$

**9. Explain peer to peer network (3marks)**

**10. Differentiate the bandwidth from latency in networking. (4 marks)**

**11. In the table bellow give and explain with examples the five arithmetic operators of Visual Basic(VB)? (10marks)**

**Each operator 1 mark, meaning in words 0.5 marks, example (Arithmetic expression) 0.5 marks.**

Operator	Meaning in words	Example( Arithmetic expression)

**12. Differentiate Entity and relationship. (4marks)**

**13. What are disadvantage of a cell phone. (2marks)**

**SECTION B: Attempt any three questions**

**14.** What are differences between a stack and a queue? Which operations provided by each? Enumerate some applications for each of those two data structure. **(10marks)**

**15.a.** Mr. Mugabo is managing a shop in our village. All daily sold products are recorded manually in book note so that he can know how much money he got. Sometimes he uses to write that the Payment is cash or not. However, when it is time to make a verification of the whole week so that he can buy new products for the shop, he uses to meet serious problems related to calculations, to know how much sold, how much remain and who have not reimbursed the debts. **( 6 marks)**

- i.** How Mr.Mugabo can improve its shop management?
- ii.** Identify approaches of database which are replacing manual database system;
- iii.** After that r replacement of systems where Mugabo will puts some useless hard copy files?

**b.** Explain any four disadvantages of Traditional File Processing System (TFPS). **(4 marks)**

**16. a.** Define an radio button and a check box in what are they different? **(5 marks)**

**b.** What the following controls prefix stand for? Chk, fil,cbo,frm,txt. **(5 marks)**

**17. a.** Discuss and compare various type of computer networks? **(5 marks)**

**b.** Discuss different factors that must be considered before making a choice for the network topology? **(5marks)**

**18.** Build a VB application that calculates the volume of the cylinder. **(10 marks)**

**SECTION C: Attempt Only one question.**

**19.** Define a class BOOK with the following specifications:

Private members of the class BOOK are BOOK\_NO integer type ; BOOKTITLE 20 characters , PRICE float (price per copy) , TOTAL\_COST() A function to calculate the total cost for N number of copies where N is passed to the function as argument. Public members of the class BOOK are : INPUT() function to read BOOK\_NO, BOOKTITLE, PRICE. PURCHASE() function to ask the user to input the number of copies to be purchased. It invokes TOTAL\_COST() and prints the total cost to be paid by the user. Note: You are also required to give detailed function definitions. **(15marks)**

**20.** Write a VB program to calculate the values of the following arithmetic operation if the user inputs two numbers M and N into two separate text boxes **(15marks)**

a.  $M^N$

b.  $M \setminus N$

c.  $M \text{ Mod } N$