0ANSWER SHEET ALL SECTION

Q1.

A. /5Marks

Boolean Expression	**Choose true or False**
YES&&NO	**FALSE**
!(!NO||YES)	**FALSE**
!(NO&&(YES||!NO))	**TRUE**
(NO||!!(YES&&!NO))	**TRUE**
!(NO&&(YES ||!NO))	**TRUE**

B. Determine the value of each of the following logical expressions if a=5, b=10 and c=-6. /5Marks

a. a>b&&a<c **5>10&&5<6 F&&T answer is FALSE**
b. a<b&&a>c **5<10&&5>6 T&&T answer is TRUE**
c. a==c||b>a **5==6||10>6 F || T answer is TRUE**
d. b>15&&c<0||c<0 **10>15&&6<0 F&&F answer is FALSE**
e. (a/2==0&&b/2==0)||c<0 **(5/2==0&&10/2==0) (FALSE && FALSE) Answer is TRUE**

Q2. Convert the following numbers in binary (Base 2) /5Marks

a. $(448)_{10}$= **111000000_2**

b. $(DA65B)_{16}$=

c. $(555)_{10}$ =**1000101011_2**

d. $(29)_{10}$=**11101_2**

e. $(12)_{10}$=**1100_2**

Q3. Convert the following numbers to decimal numbers (Base 10) /6Marks

a. $(0.0110)_2$=**0.375_{10}**
b. $(1011.101)_2$=**11.625_{10}**
c. $(101.101)_2$= $(2^2+2^1+2^0).(2^{-1}+2^{-2}+2^{-3})$=**$5.625_{10}$**

Q4. Convert the following binary number to hexadecimal number /6Marks

a. $(1110011000.111)_2$=**$398.E_{16}$**
b. $(111101000010000)_2$=**$7A10_{16}$**
c. $(10101110)_2$=**AE_{16}**

Q6. Convert the following binary number to octal number /6Marks

a. $(110100)_2$=**64_8**
b. $(111001100.001010)_2$=**714.12_8**

c. $(001101110)_2$=**156_8**

Q7. Convert the following octal number to binary number /4Marks

a. $(64)_8=X_2$
b. $(156)_8=X_2$

Q8. Answer the following question by TRUE or FALSE /5Marks

i. In AND gate the output is **true** when both inputs are false(**FALSE**)
ii. In OR gate the output is **true** if at least one of the input is true(**TRUE**)
iii. NAND gate the output is **false** if both of the inputs are true(**TRUE**)
iv. NOR gate the output is **true** if both inputs are true(**FALSE**).
v. XNOR gate the output is **true** if the input are the same and false if the inputs are different(**TRUE**)

Q9. Define the following terms: /10Marks

A. Flowchart:
B. Expression:
C. Debugging:
D. Algorithm:
E. Variable:

Q10. Give short notes on 5 variable Data types /10Marks

Here are some data types used in algorithm

Name	**Description**	**Size**
Integer	Integer accepts number with no decimals	4 bytes
Float	Floating point number accepts decimal numbers	4 bytes
Double	Double precision floating point number accept decimal numbers	8 bytes
Boolean	Boolean value. Can take one of two numbers: True or False	1 byte
Character	Character accept only one character	1 byte
String	Accepts sequence of characters	

Q11. Give short notes on 4 types of operators used in algorithm /8Marks

A. **Arithmetic operators**
B. **Comparison operators(>** Greater than,**<** Less than,**>=** Greater than or equal to,**<=** Less than or equal to,**=** Equal to,**!=** Not equal to**):** Are used on comparisons operations.
C. **Logical operators:**
D. **Assignment operator(←):** This is used to assign a vale to a variable

Q12. Distinguish Read function from Write function in algorithm /4Marks

A read function is a function which is used for inputs. It helps to receive the value entered by a user and assign it to a variable.

Write function: Write function is used for outputs; it displays the content of a variable or the displays messages.

Q13. Write algorithm and flowchart of entered 2 numbers and display the largest number among them. /15 Marks

Start

Var a,b,small ,big as float;

Write("enter two numbers:");

Read(a,b);

If (a>b) then

Big ← a;

small ← b;

write (big);

write(small);

Else

Big ← b

small ← a

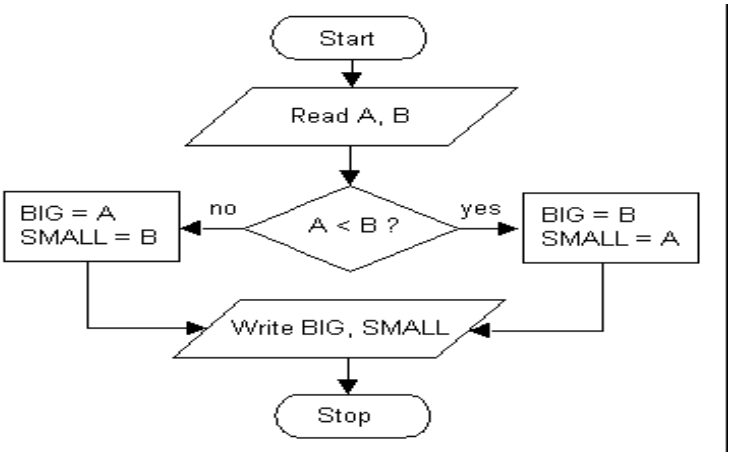
write (big);

write(small);

end if

end

a) Flowchart



Q14. Write an algorithm and flowchart that displays if entered number is even or odd. /10Marks

algorithm:

start

var x as integer;

write("enter a number");

read(x);

if(x mod 2==0)then

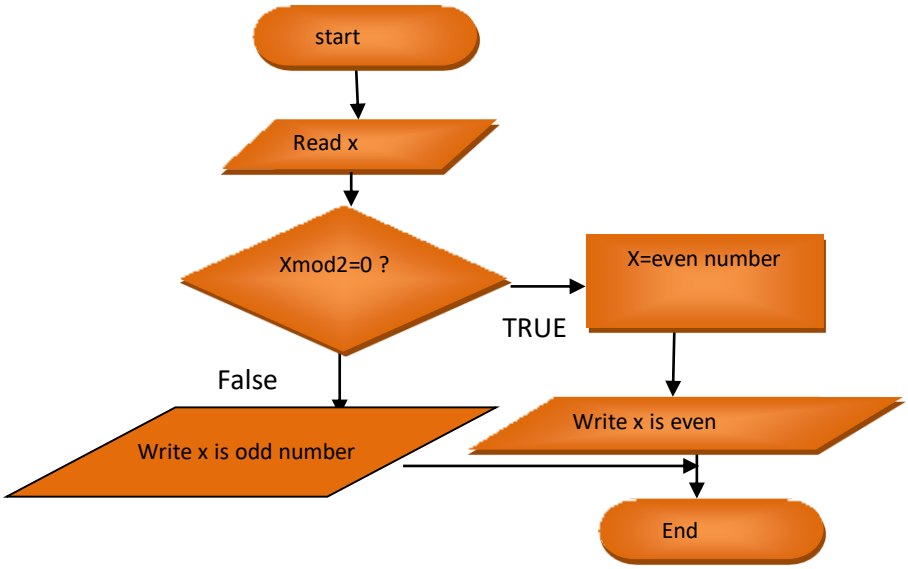
write("the number you entered is even");

else

write("the number you entered is odd");

end if

end


start
Read x
Xmod2=0 ?
X=even number
TRUE
False
Write x is even
Write x is odd number
End