Roll No.

DAV PUBLIC SCHOOLS, ODISHA ZONE
HALF YEARLY EXAMINATOIN : 2023-24

- Please check that this question paper contains **07** printed pages.
- Check that this question paper contains **35** no of questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed 15 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during this period.

CLASS: XI
SUBJECT: COMPUTER SCIENCE (083)

Time: 3 Hours   Maximum Marks: 70

General Instructions:
Please check this question paper contains 35 questions.
- The paper is divided into 4 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 3 questions (31 to 33). Each question carries 5 Marks.
- Section E, consists of 2 questions (34 to 35). Each question carries 4 Marks.
  All programming questions are to be answered using Python Language only.

QNO	QUESTION	MARKS

SECTION-A

Q1.   Component of CPU which is responsible for comparing the contents of two pieces of data is   1
       (a) ALU   (b) CU   (c) Memory   (d) Register

Q2   3PB = _____TB   1
       (a) 1024   (b) 3000   (c) 2048   (d) None of the above

Q3   Which gate produces 1 when all inputs are low ?   1
        (a) NOT   (b) NAND   (c)AND   (d) NOR

Q4.   Which of the following Consumes less memory from the system?   1
       (a) Interpreter   (b) Language Processor
       (c) Utility Software   (d) Compiler

Q5   Add the binary numbers 01010111 and 00110101 and find the result ?   1

  (a) 10011011   (b) 10001100   (c) 11010010   (d) 10001101

Q6   Write the output of the following statement: 1

print(3-2**2**3 +99/11)

  (a) 244   (b) -244.0   (c) -52   (d) -52.0

Q7   Which of the following are valid Python data types considered as Numbers?   1

  (a) Numeric   (b) None   (c) Mappings   (d) complex

Q8   Special meaning words of Pythons, fixed for specific functionality are called _____.   1

  (a) Identifiers   (b) functions   (c) Keywords   (d) literals

Q9   Give the output ?   1
k =1
s=0
while k<=4:
  print(k)
  s=s+k
  k=k+1
print("Sum of series:",s)
  (a) 11   (b) 10   (c) 13   (d) 15

Q10   Consider the given expression: 1

        "computer" or "" and "python" or not 1

Which of the following will be correct output if the given expression is evaluated ?

  (a) ""   (b) False   (c) 'computer'   (d) 'python'

Q11   Give the output: 1

a, b, c = 1, 3, 5
if a > 0:
  if b < 2:
    print("Hi")
  elif c > 3:
    print("Hello")
else:
  print("Know Program")

  (a) 'Hi'   (b) Hello
  (c) Know Program   (d) Compiled Successfully, No Output.

Q12   What does the following Python program display?   1

```
x = 5
if  x == 10:
   print ("Am I here?", end = ")
elif  x == 5:
   print("Or here?", end = "")
else:
   pass
print ("Or over here?")
```
(a) Am I here?   (b) Am I here? Or over here?
(c) Am I here? Or here?   (d) Or here? Or over here ?

Q13   Consider the loop given below: 1
        for i in range(2,-3,-1):
           print (i,end=' ')How many times will this loop run?
        (a) 5   (b) 0   (c) infinite   (d) Error

Q14   (X+Y')(X+Z) can be represented by _____ .   1

        (a) (X+Y'Z)   (b) (Y+X')   (c) XY'   (d) (X+Z')
Q15   What is the output of the following python code   1
        x=20
        y=60
        if x**2>100 and y<100:
             print(x,y)
        (a) 100 400   (b) 100 200   (c) None   (d) 20 60

Q16   _____ is the binary equivalent of 10011000110   1

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice .
        a) Both A and R are true and R is the correct explanation for A
        b) Both A and R are true and R is not the correct explanation for A
        c) A is True but R is False
        d) A is False but R is True

Q17   Assertion (A) :- Variables once assigned a value can not be given any other value.   1
        Reasoning (R) :- Python variables does support dynamic typing.

Q18   Assertion (A) :-The **and** operator will test the second operand only if the first operand   1
        is false. Otherwise ignore it.
        Reasoning (R) :- The **or** operator evaluates to False if either or both of its operands
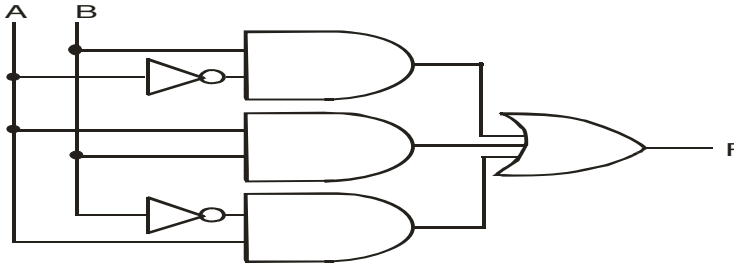   evaluate to False.
                                    SECTION-B
Q19   a) What is the difference between UTF-8 and UTF-32 encoding System .   2

Q20   b)Convert the following   2

i. $(11111011110101)_2 = ( )_8$

ii. $(72905)_{10} = ( )_{16}$

Q21   Draw the logical circuit diagram for the following Boolean expression.   2

   AB'C+ABC+A'BC'

OR

Write the expression for the following logic circuit:

Q22   What is the significance of Utility Software? Write its Functions with at least   2
         two examples.

Q23.   Distinguish between Logical Error and Value Error with a small code examples.   2

Q24.   Rewrite the following code in Python after removing all syntax error(s). Underline each   2
        correction done in the code.

```
25=Val
for I in the range(0,Val)
   if I%2 = 0:
      print( I+1)
    Else:
       print (I-1)
```

Q25   Give the correct output for the following code.   2
```
S='It is my Personal'
S1='Chat'
S2=S[:3]+S1[len(S1)-1:]
print(S2)
```

SECTION-C

Q26   R=""   3

Name="Half Yearly 2023"

for x in range(len(Name)):

   if Name[x].isupper():

        R=R+Name[x].lower()

   elif Name[x].islower():

```
            R=R+Name[x].upper()
        elif Name[x].isdigit():
            R=R+Name[x-1]
        else:
            R=R+"#"
    print(R)
```

Q27. An electric shopping store has announced the following seasonal discounts on purchase   3
of certain items.

Purchase Amount	Discount on Laptop	Discount on Desktop
Up to Rs 25000	0.0%	5.0%
Rs 25,001 to Rs. 50,000	5.0%	7.5%
More than Rs 50,000	7.5%	10.0%

Write a Python code to input name, Amount of Purchase and the type of Purchase

('L' for Laptop and 'D' for Desktop by a customer.) Compute and print the

Net amount.

(Net amount=Amount of Purchase-Discount)

Q28. Evaluate the following for each expression that is successfully evaluated, determine   3
its value.
```
P=2
while P<6:
    if P==3:
        P+1
        continue
    print("Hi Everyone")
    P+1
```
OR

What will be output produced by following code? State reason for this output.

```
val = 20
total = 0
for count in range(1,val,2):
    total = total + count
    if count % 2 == 0:
        print(count*10,end=' ')
    else:
        print(count,end=' ')
print (total)
```

Q29   Write a program that asks a user for a number of years, and then prints out the number   3
of days, hours, minutes, and seconds in that number of years.

Q30.   Write a short program to check whether square root of a number is prime or not.   3

SECTION-D

Q31.   a) Rewrite following code fragments using while loops: 2+3

for i in range(2, 20) :

  if i % 3 == 0 :

    print (i)

b) Write a program to find the sum of the following series:

$X+X^3/2! + X^5/3! \ldots\ldots +X^{(2*N-1)}/N!$

OR

a) A program snippet using nested loop construct is given below:

s=10

for i in range(1,4):

  for j in range(1,i):

    s + = j

print(s)

What will be the final value of 's' when the above program snippet is executed.

b)WAP to enter the numbers as per the user choice and print the sum of -ve ,
sum of positive even and positive odd numbers till user enters 0.

Q32.   a) Suggest appropriate functions for the following tasks with example.   2+3

    1.To split the string at the first occurrence of separator and returns a tuple
containing three items.

    2. Returns a lowest index in the string where the substring is found within a range.

b) Write a program to input a string and convert all vowels by its next alphabet.
  For example:
  If the entered string is "I love India".
  Then, output should be, "J lpvf Jndjb"

Q33.   **Write a program as per specifications given below:**   3+2
Write a program that should prompt the user to type some sentence (s) followed by
"enter". It should then print the original sentence (s) and the following statistics
relating to sentence (s):
a) Number of word.
b) Number of character (including white space and punctuation)
        (OR for Part (b) Only)

b) Percentage of character that are alpha numeric.

SECTION-E

Q34.   4

Being a good programmer of Python and also a true friend of Rajnish, help him in completing his code flawlessly by answering the following questions.

Rajnish has been given an assignment by Ajay sir to make a simple arithmetic calculator by using Python programming language. Ajay sir is a very strict Computer Science Teacher and he instructed Rajnish not to do any mistake in the given task. Rajnish has written the following lines of code and is really worried about it.

```
num1 = _____(input("Enter first number:"))          # Line 1

num2 = _____(input("Enter second number:"))         # Line 2

op = _____              # Line 3
result = 0
if op = = '+' :
     result = num1 + num2

elif op = = '–' :

     result = num1 – num2
elif op = = '*' :                                     #Line-4
     result = num1 * num2
elif op = = '/ ' :
     result = num1 / num2
elif op = = '%' :
     result = num1 % num2
else :
     print ("Invalid operator!!")
```

(i) Name the function that he should write before the print( ) function in **Line 1 and Line-2** to accept real numbers.   1

(ii) In order to get an operator symbol in the variable "**op**" from the user, fill in the blank in **Line 3** with appropriate statement.   1

(iii) Predict the outcome he will get when the user will provide "#" symbol as the operator?   1

(iv) Help him to find the impact on his answer, if all the "elif" statements will be replaced with "if" statements.   1

Q35.   Raman wants to write a program to find Factorial of a given number as he is assigned   4
by his teacher. Can you suggest a flow diagram to find the same with its algorithm to make Raman's work more easy.