

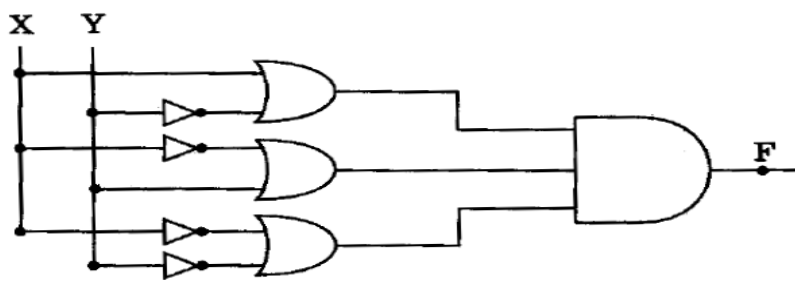
KENDRIYA VIDYALAYA SANGATHAN RANCHI REGION
HALF YEARLY EXAMINATION 2019-20
SUB: COMPUTER SCIENCE, CLASS - XI
SET-2

ANSWER KEY

Ans(1)		1MARKS FOR EACH CORRECT ANSWER	
	(A)	(i)	
	(B)	(i)	
	(C)	(i)	
	(D)	(iii)	
	(E)	(iii)&(iv)	
	(F)	(ii)	
	(G)	<i>Guido Van Rossum</i>	
	(H)	<i>Bit</i>	
	(I)	<i>Bus</i>	
	(J)	<i>Input</i>	
Q2.	(A)	Briefly explain the basic architecture of a computer with diagram?	[2]
	Ans:	1Marks for explanation and 1Marks for diagram	
	(B)	What is the function of memory? What are its measuring units?	[2]
	Ans:	The memory temporarily holds the data and information during processing. The smallest unit of memory is bit. (1Marks for writing function of memory and 1Marks for measuring unit)	
	(C)	What do you mean by memory devices? Explain RAM and ROM.	[2]
	Ans:	1Marks for memory devices and 1Marks for explain RAM and ROM	

	(D)	What is SoC? How it is different from CPU?	[2]
	Ans:	The major components of a mobile system are integrated on a single chip called System on chip(SoC). The SoC chips consume less power compared to other alternatives. <i>(1Marks for defining SoC and 1Marks writing difference)</i>	
	(E)	What are the advantages of Python programming language?	[2]
	Ans:	<i>½ Marks for each advantages</i>	
Q3.	(A)	Explain the following terms: (i) Assembler (ii) Compiler (iii) Interpreter	[3]
	Ans:	<i>1Marks for each explanation correctly</i>	
	(B)	What is cloud computing and what are its types?	[2]
	Ans:	It is a technology of distributed data processing in which some scalable information resources and capacities are provided as a service to multiple external consumers through the internet. It allows storing, accessing data and programs using the internet. There are two types (i) Public cloud: In this service, the resources such as memory, hardware devices and network devices are shared by all clients.(e.g Google Drive) (ii) Private cloud: It is own by individual or organization, all the resources such as memory and services dedicated solely to an organization. <i>(1Marks for defining Cloud and 1Marks for its Types)</i>	

	(C)	What is parallel computing?	[1]
	Ans:	<p>Parallel computing is a type of computation in which many calculations or the execution of processes are carried out simultaneously. Large problems can often be divided into smaller ones, which can then be solved at the same time.</p> <p>(2Marks for writing any correct definition)</p>	
	(D)	What are the various category of software explain in brief?	[2]
	Ans:	<pre> graph TD Software[Software] --> System[System Software] Software --> Application[Application Software] System --> OS[Operating System] System --> LP[Language Processor] System --> DDU[Device Drivers and Utilities] LP --> Assembler[Assembler] LP --> Interpreter[Interpreter] LP --> Compiler[Compiler] Application --> GPS[General Purpose Software] Application --> SS[Specialist Software] Application --> CS[Customize Software] </pre> <p>(2Marks for writing correct definition)</p>	
	(E)	What is Operating System? Give one example of each single user and multiuser Operating System	[2]
	Ans:	(1Marks for defining OS and ½ Marks each for example)	
Q4.	(A)	Name the law shown below and verify it using a truth table.	[2]
		$A + B.C = (A+B).(A+C)$	
	Ans:	Distributive law (1Marks for wring name of law and 1 marks for correct Truth table verification)	

	(B)	Write the equivalent Boolean expression for the following Logic Circuit : 	[2]
	Ans:	$(X+Y')(x'+Y)(x'+Y)$ 2 Marks for writing correct output	
	(C)	Convert the following base of number system: (i) $(1010100.011)_2 = (\dots\dots\dots)_{10}$ (ii) $(3674)_8 = (\dots\dots\dots)_2$ (iii) $(72905)_{10} = (\dots\dots\dots)_{16}$ (iv) $(B2F)_{16} = (\dots\dots\dots)_8$	[6]
	Ans:	(i) 84.325 (ii) 11110111100 (iii) 11CC9 (iv) 5457 1½ Marks for giving each of correct answer	
Q5.	(A)	What is the difference between a keyword and an identifier?	[2]
	Ans:	1Marks for defining keyword and 1Marks for identifier	
	(B)	Name the Primitive data types in python. Explain mutable and immutable data types in python.	[2]
	Ans:	Built in Data types: (i) Numbers(int, float, complex) (ii) String (iii)List (iv) Tuple (v) Dictionary (1Marks for writing primitive data types and 1Marks for explain mutable and immutable)	

	(C)	Predict the output of following code snippet: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>(i) <code>x, y=20,60</code> <code>y, x, y=x, y-10, x+10</code> <code>print(x, y)</code></p> </div> <div style="width: 45%;"> <p>(ii) <code>a, b=12,13</code> <code>c, b=a*2,a/2</code> <code>print(a, b, c)</code></p> </div> </div>	[2]
	Ans:	(i) <code>50 30</code> (ii) <code>12 6.0 24</code> <i>1Marks each for correct output</i>	
	(D)	What is Token? What are categories of Token exist in Python?	[2]
	Ans:	<i>1Marks for defining Token and 1Marks for its categories</i>	
	(E)	Find and write the output of the following Python program code : <pre>>>>print (3**2 + 18/9 - 3**4+1) >>>print (12%5*3+(2*6) // 4)</pre>	[2]
	Ans:	<code>-69.0</code> <code>9</code> <i>(1Marks for each correct line of output)</i>	
Q6.	(A)	Write Python expressions equivalent to the following arithmetic/algebraic expression: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>(i) $ut + \frac{1}{2} ft^2$</p> <p>(iii) $3^2 + \frac{9^3}{5}$</p> </div> <div style="width: 45%;"> <p>(ii) $\sqrt{a} + \frac{a+2}{b}$</p> <p>(iv) $e^{ 2x^2 - 4x }$</p> </div> </div>	[2]
	Ans:	(i) <code>u*t+f*t*t/2</code> (ii) <code>math.sqrt(a)+(a+2)/b</code> (iii) <code>3*3+(math.pow(9,3))/5</code> (iv) <code>math.exp(math.abs(2*x*x-4*x))</code> <i>½ marks for each correct answer</i>	
	(B)	Find out the error(s) in following code fragments and rewrite corrected code? <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>(i) <code>max temp=30</code> <code>print max temp</code></p> </div> <div style="width: 45%;"> <p>(ii) <code>a=30</code> <code>b= a+b</code> <code>print(a And b)</code></p> </div> </div>	[2]

		(iii) a, b, c = 2, 8, 9 print (a ; b; c)	(iv) name= "Hari" print (name) name[2] = 'R' print(name)	
	Ans:	(i) <u>max temp=30</u> <u>print(max temp)</u>	(ii) a=30 <u>b= a+b # b is not define</u> <u>print(a, b)</u>	
		(iii) a, b, c = 2, 8, 9 <u>print (a , b, c)</u>	(iv) name= "Hari" print (name) <u>name[2] = 'R'</u> print(name)	
		<i>SyntaxError: invalid character in identifier</i>		
	(C)	What is comment? Explain with help of example in python?		[2]
	Ans:	1Marks for definition and 1Marks for examole		
	(D)	Explain the following with help of suitable example		[4]
		(i) Flow Chart (ii) Decision Tree (iii) Pseudo-code		
	Ans:	(i) 1½ Marks for correct definition and diagram (ii) 1½ Marks for correct definition and diagram (iii) 1 Marks for definition		
Q7.	(A)	Write a Python program to calculate the compound interest. The principal, rate of interest and time must be entered by the user. (Formula: Compound Interest = Principal (1 + Rate/100) ^{Time})		[2]
	Ans:	<pre>p = float(input("Enter the principal amount: ")) r = float(input("Enter the interest rate: ")) t = float(input("Enter the time in years: ")) interest = p * (pow((1 + r / 100), t)) print("Compound interest is %.2f" % interest)</pre> (1Marks for logic(Formula) and 1Marks for input and output)		

	<p>(B) Write a Python program to obtain width and height of a rectangle and calculate its area.</p>	[2]
	<p>Ans: width = float(input('Please Enter the Width of a Rectangle: ')) height = float(input('Please Enter the Height of a Rectangle: ')) Area = width * height print("\n Area of a Rectangle is: %.2f" %Area) <i>(1Marks for logic(Formula) and 1Marks for input and output)</i></p>	
	<p>(C) Write a program in python to accept a character from the user and display whether it is a vowel or consonant.</p>	[3]
	<p>Ans: ch = input("Enter a character: ") if(ch=='A' or ch=='a' or ch=='E' or ch =='e' or ch=='I' or ch=='i' or ch=='O' or ch=='o' or ch=='U' or ch=='u'): print(ch, "is a Vowel") else: print(ch, "is a Consonant") <i>(½ Marks for taking input, ½ displaying output and 2 Marks for logic)</i></p>	
	<p>(D) Write a python program to print Fibonacci series' first 20 elements. Some initial elements of a Fibonacci series are: 0 1 1 2 3 5 8.....</p>	[3]
	<p>Ans: nterms = 20 n1 = 0 n2 = 1 count = 0 print("Fibonacci sequence upto",nterms,":") while count < nterms: print(n1,end=' , ') nth = n1 + n2 # update values n1 = n2 n2 = nth count += 1 <i>(2Marks for loop(for/while) and update values, 1Marks for disply)</i></p>	