CLASS XI - HALF YEARLY EXAMINATION – 2018-19

SUBJECT: INFORMATICS PRACTICES (065)

MARKING SCHEME

Time: 03:00 Hrs. **Max: 70**

Q.1 **(a)**

What is the role of CPU in mobile system? ***1***

Ans.

A **processor** or **CPU** is the brain of a smartphone. It receives commands and makes instant calculation and sends signals throughout your device (like human brain)

1 mark for correct answer or any other similar correct answer

(b)

Write full form of APU and GPU in context of mobile system organisation. ***1***

Ans.

APU – Applications Processing unit
GPU – Graphics Processing unit

½ mark for each correct answer

(c)

EB- Exa Byte , ZB- Zetta Byte ***1***
(1/2 marks for each *correct answer)*

Ans.

(d)

Differentiate between the Static and Dynamic RAM. ***2***

Ans.

Dynamic RAM	Static RAM
✓ DRAM uses a separate capacitor to store each bit of data ✓ DRAM needs periodic refreshment to maintain the charge in the capacitors for data ✓ DRAM's structure is simplex than SRAM ✓ DRAM's are less expensive as compared to SRAM ✓ DRAM's are slower than SRAM ✓ DRAM are used in Main memory	✓ SRAM uses transistor to store a single bit of data ✓ SRAM does not need periodic refreshment to maintain data ✓ SRAM's structure is complex than DRAM ✓ SRAM are expensive as compared to DRAM ✓ SRAM are faster than DRAM ✓ SRAM are used in Cache memory

1 mark for at-least one correct difference
2 marks for at-least two correct difference

(e)

What is difference between compiler and interpreter? (any two) ***2***

Ans.

Interpreter	Compiler
✓ Translates program one statement at a time.	✓ Scans the entire program and translates it as a whole into machine code.
✓ It takes less amount of time to analyze the source code but the overall execution time is slower.	✓ It takes large amount of time to analyze the source code but the overall execution time is comparatively faster.
✓ Continues translating the program until the first error is met, in which case it stops. Hence debugging is easy.	✓ It generates the error message only after scanning the whole program. Hence debugging is comparatively hard.
✓ Programming language like Python, Ruby use interpreters.	✓ Programming language like C, C++ use compilers.

<table>
<tr><td></td><td></td><td>1 mark for at-least one correct difference
2 marks for at-least two correct difference</td><td></td></tr>
<tr><td></td><td>(f)
Ans.</td><td>What is SoC? How it is different from CPU? Why it is considered a better development?

SoC refers to system on a chip widely used in smartphones.

It is better than CPU because it consist of CPU, GPU, modem, multimedia processor, security device and signal processor.

It offers better performance while power consumption is comparatively less.

1 mark for each correct answer.</td><td>3</td></tr>
<tr><td>Q.2</td><td>a</td><td>Guido Van Rossum in 1990 developed python programming language</td><td>1</td></tr>
<tr><td></td><td>b</td><td>PyScripter , Spyder
(1/2 marks for each correct name)</td><td>1</td></tr>
<tr><td></td><td>c</td><td>Valid identifiers _tax , roll_no , , totalmarks , addr1
(1/2 marks for each)</td><td>2</td></tr>
<tr><td></td><td>d</td><td>2 marks for various merits and
1 marks for demerits of python programming language.</td><td>3</td></tr>
<tr><td></td><td>e</td><td>1 marks for definition of data types. 1 marks for explanation and name of Python's built in core data types and 1 marks for examples.</td><td>3</td></tr>
<tr><td>Q.3</td><td>(a)
Ans.</td><td>What is difference between equality (==) and identity (is) operator?

Equality (==) compares values while identity (is) compares memory address of variables/objects.

½ mark for each correct use
1 mark for correct difference answer</td><td>1</td></tr>
<tr><td></td><td>(b)
Ans.</td><td>The statement 3*2 multiplies 3 by 2 and produces the result 6 while 3**2 calculates 3 raise to the power 2 and produces the result 9.
(1/2 marks for each expression)</td><td>1</td></tr>
<tr><td></td><td>(c)
Ans.</td><td>What is difference between implicit and explicit type conversion?

<table><tr><th>Implicit Conversion</th><th>Explicit Conversion</th></tr><tr><td>✓ Implicit Conversion is done automatically.</td><td>✓ Explicit Conversion is done by programmer.</td></tr><tr><td>✓ In Implicit conversion, no data loss take place during the data conversion.</td><td>✓ In explicit conversion, data loss may or may not be take place during data conversion. Hence there is a risk of information loss.</td></tr><tr><td>✓ Implicit conversion do not require any special syntax.</td><td>✓ Explicit conversion do require cast operator to perform conversion.</td></tr></table>
1 mark for at least one difference</td><td>1</td></tr>
<tr><td></td><td>(d)</td><td>What will be the output produced by the following code-

<code>A, B, C, D = 9.2, 2.0, 4, 21</code></td><td>2</td></tr>
</table>

		`print(A/4)`
		`print(A//4)`
		`print(B**C)`
		`print(A%C)`	

	Ans.	*output-*
		`2.3`
		`2.0`
		`16.0`
		`1.1999999999999993`
		
		½ mark for each correct answer	

	(e) **Ans.**	1. c = (a + b) / (2 *a) 2. x = a**3 + b**3 + c**3 3. A = math.pi * r (r + h) ** 2 or A = 3.14*r (r +h) ** 2 4. x = (-b + math.sqrt(b*b – 4 * a * c)/ (2*a) (1/2 marks for each correct expression)	***2***

	(f)
	
	Ans.
		Write a program to get input from user calculate EMI as per formula:
		$E=PR(1+R)^n / ((1+R)^n -1)$
		
		Where-
		E=EMI, P=Principal amount, R=Rate of interest, n=tenure of loan in months.
		
		`import math`
		`p=float(input("Enter principal amount-"))`
		`r=float(input("Enter rate of interest-"))`
		
		`n=float(input("Enter tenure of loan in months-"))`
		
		`e=p*r*math.pow(1+r,n)/math.pow(1+r,n)-1`
		`print("EMI :",e)`
		
		3 marks for each correct code or any other similar code
			3

Q.4	**(a)** **Ans.**	What is empty statement? What is the role of empty statement? Which python statement can be termed as empty statement? A statement that does nothing. Use – where the syntax of the language require the presence of statement but the logic of the program does not. ***pass*** statement is an empty statement. *1 mark for at least one correct answer* *2 marks for correct answer*	***2***

	(b)
	
	Ans.
		Predict the output of the following code fragment-
		`x = 1`
		`if x>3:`
		`  if x>4:`
		`  print("A", end=' ')`
		`  else:`
		`  print("B", end=' ')`
		`elif x<2:`
		`  if (x!=0):`
		`  print("C", end=' ')`
		`print("D")`
		
		Output-
			2

```
C D
```

1 mark for each correct output

(c) A year is leap year if it divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that ask the user for a year and printout whether it is a leap year or not. ***3***

```
year=int(input("Enter year to be checked:"))
if(year%4==0 and year%100!=0 or year%400==0):
    print("The year is a leap year!)
else:
    print("The year isn't a leap year!)
```

3 marks for correct code or any other similar code

(d) ABC shop deals with footwear and apparels. Write a program to calculate total selling price after levying the GST. Do calculate central Govt. GST and state govt. GST. GST rates as applicable as under- ***3***

Item	GST Rate
Footwear <= 500 (per pair)	5%
Footwear > 500 (per pair)	18%
Apparels <= 1000 (per piece)	5%
Apparels > 1000 (per piece)	12%

Ans.

```
itc=input("Enter item code (A)Apparel (F)Footwear-")
sp=float(input("enter selling price-"))
if itc=='A':
    if sp<=1000:
        gstRate=5
    else:
        gstRate=12
elif itc=='F':
    if sp<=500:
        gstRate=5
    else:
        gstRate=18

cgst=sp*(gstRate/2)/100
sgst=cgst
amount=sp+cgst+sgst

print("Total sell price-",amount)
```

3 marks for correct code or any other similar code

Q.5 **(a)** What is pseudo code? How it is useful in developing logic for the solution of a problem? ***1***

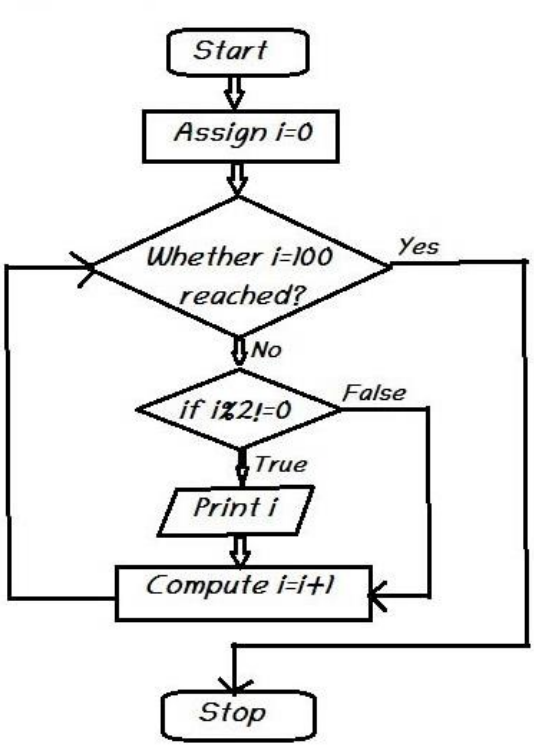
Pseudo code in informal way of describing the steps of a program's solution without using any strict programming language syntax.

It gives the idea of how the algorithm works and how the control flows from one step to another.

½ mark for correct definition
½ mark for correct use

	(b)	Write four elements of while loop in python? 1. Initialization expression 2. Test expression 3. Body of the loop 4. Update expression *½ mark for each two correct elements*	***1***

	(c)	Identify and correct the problem with following code-
		`countdown=10`
		`while countdown > 0:`
		`  print(countdown, end=' ')`
		`  countdown – 1`
		`print("Finally.")`
		
		`It is infinite loop due to non updation of variable` *countdown*.
		
		1 mark for correct answer
			1

	(d) **Ans.**	Draw flowchart for displaying first 100 odd numbers.  	***2***

	(e)
	
	Ans.
		Write a python script to print 'Fibonacci series' first 20 elements. Some initial elements of the series are: 0 1 1 2 3 5 8 . . .
		
		`nterms = int(input("How many terms? "))`
		`n1 = 0`
		`n2 = 1`
		`count = 0`
		
		`print("Fibonacci sequence upto",nterms,":")`
		`while count < nterms:`
		`  print(n1,end=' , ')`
		`  nth = n1 + n2`
		`  n1 = n2`
		`  n2 = nth`
		`  count += 1`
			2

		2 marks for correct code or any other similar code	

	(f)
	
	Ans.
		Write a python script to read an integer > 1000 and reverse the number.
		
		`n=int(input("Enter number: "))`
		`rev=0`
		`while(n>0):`
		`  dig=n%10`
		`  rev=rev*10+dig`
		`  n=n//10`
		`print("Reverse of the number:",rev)`
		
		3 *marks for correct code or any other similar code*
			3

Q.6	**(a)** **Ans.**	What are list slices? What for can you use them? Slice is a part of a list containing some contiguous elements from the list. Or subpart of a list extracted out. It is use to extract some contiguous part or elements of list (sub part) from main list. *½ mark for each correct slice definition or correct use.* *1mark for correct answer and any other similar answer.*	***1***

	(b)
	
	Ans.
		What will the following code result in-
		
		`L1=[1,3,5,7,9]`
		`print(L1==L1.reverse())`
		`print(L1)`
		
		Output-
		`False`
		`[9, 7, 5, 3, 1]`
		
		½ mark for each output line
			1

	(c) **Ans.**	How is ***clear()*** function different from ***del<dict>*** statement? The ***clear()*** function removes all items from the dictionary and the dictionary becomes empty while ***del<dict>*** statement deletes a dictionary element or dictionary entry i.e. a key:value pair. *½ marks for each correctly defining function/statement* *1 mark for correct difference*	***1***

	(d)
	
	Ans.
		Predict the output of the following code-
		
		`d1={5:"number","a":"string",(1,2):"tuple"}`
		`print("Dictionary contents")`
		`for x in d1.keys():`
		`  print(x,':',d1[x],end=' ')`
		`  print(d1[x]*3)`
		`  print()`
		
		Output-
		Dictionary contents
		5 : number numbernumbernumber
		a : string stringstringstring
		(1, 2) : tuple tupletupletuple
			2

		½ marks for each correct output line	

	(e)
	
	Ans.
		Write a python script to search an element in a given list of numbers.
		
		`lst=eval(input("Enter list:"))`
		`length=len(lst)`
		`element=int(input("Enter element to be searched for :"))`
		`for i in range(0,length-1):`
		`  if element==lst[i]:`
		`  print(element,"fount at index", i)`
		`  break`
		`else:`
		`  print(element," not found in given list")`
		
		2 marks for correct code or any other similar code
			2

	(f) **Ans.**	1 marks for each method	***3***

Q.7	**(a)**
	
	Ans.
		What is argument? Give an example.
		
		List of variables/objects passed to a functions or variables/objects that carries values from function call statement to function definition.
		
		Example-
		
		`def greet(name,msg):`
		`  """This function greets to`
		`  the person with the provided message"""`
		`  print("Hello",name + ', ' + msg)`
		`greet("Monica","Good morning!")`
		
		½ mark for correct definition
		½ mark for correct example
			1

	(b)
	
	Ans.
		Rewrite the following code after removing errors if any and underline each corrections-
		
		`def func1()`
		`  input("input numbers:")`
		`  return number`
		
		`def func1():`
		`  number=input("input numbers:")`
		`  return number`
		
		½ mark for mentioning each error.
			1

	(c) **Ans.**	Write any four python's built in string manipulation methods with example. `string.capitalize()`, `string.isalnum()`, `string.isalpha()`, `string.isdigit()`, `string.isspace()`, `string.islower()`, `string.isupper()`, `string.lower()`, `string.upper()` or any other function with example *½ mark for any correct method with suitable example.*	***2***
	(d)	Write a program that reads a string and then print a string that capitalizes every other letter in the string e.g. ***passion*** becomes ***pAsSiOn***	***3***

	Ans.	```
		string=input("Enter a string")
		length=len(string)
		print("Original String:",string)
		string2=""
		for a in range(0,length,2):
		string2+=string[a]
		if a< (length-1):
		string2+=string[a+1].upper()
		print("Alternatively capitalized string:", string2)
		``
		3 marks for correct code or any other similar code	

	(e) **Ans.**	Explain the following terms - 1. **Module** – Named block of statements within program. 2. **Function** – Named independent grouping of code and data. 3. **Namespace** – Named logical environment holding logical grouping of related objects. *1 Mark for each correct answer.*	***3***