

Sample Question Paper-D

1. (a) An advantage of using Proprietary Software over Open Source Software is that it is much reliable than open source. (1)
- (b) **Bootstrapping** is the process of starting a computer, specifically in regards to starting its software. The process involves a chain of stages, in which at each stage a smaller simpler program loads and then executes the larger more complicated program of the next stage. (1)
- (c) (i) Power Management
(ii) Memory Management (2)
- (d) (i) Large Number of Instructions
(ii) Large Address Space (2)
2. (a) BOSS- Bharat Operating System Solutions. (1)
- (b) Comments are used to convey a message to programmer that what a particular line of code does in a program. No, It is not necessary to comment every line of code. (2)
- (c) A **logic error** is a bug in a program that causes it to operate incorrectly, but not to terminate abnormally (or crash). A logic error produces unintended or undesired output or other behavior, although it may not immediately be recognized as such.
Logic errors occur in both compiled and interpreted languages. Unlike a program with a syntax error, a program with a logic error is a valid program in the language, though it does not behave as intended. The only clue to the existence of logic errors is the production of wrong solutions. (2)
- (d) (i) 5A
(ii) 467
(iii) 10 11 (3)
3. (a) Keyword is a reserved word that is used for a special purpose in a program. (1)
- (b) rint() function is used to round off the entered value.
Example: rint(5.6) gives answer as 6
abs() is used to return absolute value of entered number.
Example: abs(-2) gives 2 (2)
- (c) lower() is used to convert entered string to lowercase
islower () is used to check if entered string is lowercase or not.
Example:
lower(A) will return a
islower(A) will return False (2)
- (d) **Algorithm:**
STEP 1: START
STEP 2: Input income.
STEP 3: Check if income>100000
STEP 4: If yes, then print "You are eligible for income tax" GOTO STEP 6
STEP 5: If no, print "Not eligible for paying tax"
STEP 6: END (2)
- (e) **Creating Lists**
To create a list, put a number of expressions in square brackets:
L = []
L = [expression, ...]
This construct is known as a "list display". Python also supports computed lists, called "list comprehensions". In its simplest form, a list comprehension has the following

syntax:

```
L = [expression for variable in sequence]
```

where the expression is evaluated once, for every item in the sequence.

The expressions can be anything; you can put all kinds of objects in lists, including other lists, and multiple references to a single object.

You can also use the built-in **list** type object to create lists:

```
L = list() # empty list
```

```
L = list(sequence)
```

```
L = list(expression for variable in sequence)
```

The sequence can be any kind of sequence object or iterable, including tuples and generators. If you pass in another list, the **list** function makes a copy.

Note that Python creates a single new list every time you *execute* the `[]` expression. No more, no less. And Python never creates a new list if you assign a list to a variable.

```
A = B = [] # both names will point to the same list
```

```
A = []
```

```
B = A # both names will point to the same list
```

```
A = []; B = [] # independent lists
```

For information on how to add items to a list once you've created it, see *Modifying Lists* below.

Accessing Lists

Lists implement the standard sequence interface; **len(L)** returns the number of items in the list, **L[i]** returns the item at index *i* (the first item has index 0), and **L[i:j]** returns a new list, containing the objects between *i* and *j*.

```
n = len(L)
```

```
item = L[index]
```

```
seq = L[start:stop]
```

If you pass in a negative index, Python adds the length of the list to the index. **L[-1]** can be used to access the last item in a list.

For normal indexing, if the resulting index is outside the list, Python raises an **IndexError** exception. Slices are treated as boundaries instead, and the result will simply contain all items between the boundaries.

Lists also support slice steps:

```
seq = L[start:stop:step]
```

```
seq = L[:2] # get every other item, starting with the first
```

```
seq = L[1::2] # get every other item, starting with the second (4)
```

4. (a) **Inventory management** software is a computer-based **system** for tracking inventory levels, orders, sales and deliveries. (2)

- (b) **Unix** (officially trademarked as **UNIX**, sometimes also written as **UNIX** in small caps) is a multitasking, multi-user computer operating system originally developed in 1969 by a group of AT&T employees at Bell Labs, including Ken Thompson, Dennis Ritchie, Brian Kernighan, Douglas McIlroy, Michael Lesk and Joe Ossanna.

First developed in assembly language, by 1973 it had been almost entirely recoded in C, greatly facilitating its further development and porting to other hardware. (2)

- (c) **Script Mode:**

In script mode, we have to write a program in an editor. It is not a console based system. The difference here is that we have to write and save the whole program at one and then call it from the python shell. It is slower as compared to interactive mode but it is better when writing big programs. (3)

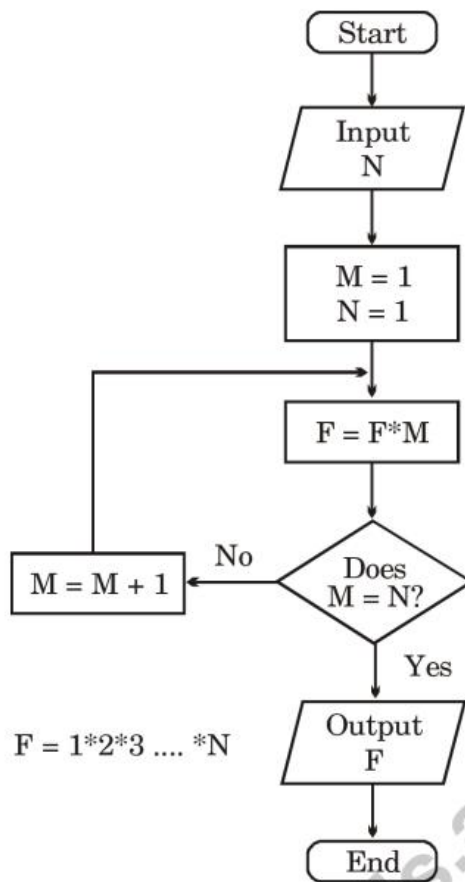
- (d) Some of the guidelines for effective problem solving are:

- (i) Understand the problem well
- (ii) Identify the conditions
- (iii) List the possible solutions (options).
- (iv) Evaluate the options.

- (v) Select an option
- (vi) Agree on contingencies
- (vii) Monitor the progress.

(3)

(e)



(3)

- (f) (i) 2
(ii) 4
(iii) 5,7,9
(iv) 5,7,9

(1)

(1)

(1)

(1)

5. (a) def change_temp () :
C = input ("Enter °C")
F = ((9*C + 160)/5)

Print C

(2)

(b) **Latency** is a measure of time delay experienced in a system, the precise definition of which depends on the system and the time being measured. For an ideal system, seek time must be the minimum.

(2)

(c) hellooswal
hellohellooswal
hellohellohellooswal

(3)

(d) def cosine(x):
term = float(x)
result = term # avoid 'sum' which is the name of a builtin function
u = term * term # this is minus (x squared)
n = 0 # use an integer for integer data
while abs(term) > 1.0e-10:
n += 2
term *= u / (n * (n+1))


```
result += term
return result
```

(4)

6. (a) A function is a part of program that does a specific task. (1)

(b) >> b = 'like to say' + 'hi'
>>c= b
>>println b+c

(1 mark for each correction)

(c) 0
0
3

(1 mark for each line)

- (d) The decision constructs in python are as follows:

(i) **if statements**

if statement checks for an expression and performs the decision based on the true or false value of the expression.

n = raw_input("Integer? ")#Pick an integer. And remember, if raw_input is not supported by your OS, use input()

n = int(n)#Defines n as the integer you chose. (Alternatively, you can define n yourself)

if n < 0:

print ("The absolute value of",n,"is",-n)

(ii) **elif statements**

if statement handles only cases where the value of expression is true while elif statement can handles the cases when the value of expression is false.

a = 0

while a < 10:

a = a + 1

if a > 5:

print (a,">",5)

elif a <= 7:

print (a,"<=",7)

else:

print ("Neither test was true")

(4)

7. (a) From math import pi

r = 56

*P = 2*pi*r*

Print "Perimeter =" +str(P).

(2)

- (b) Hard real time systems are the systems which guarantee to solve a certain problem in a fixed time-period. One application of Hard Real Time Systems is in the Aircraft systems. (2)

- (c) **def User():**

ij = 0,0

s = raw_input('MOHAN')

print "+",

while(i < len(s)):

print "-",

i = i +1

print "+"

print "| ",

print s, " |"

print "+",

while(j < len(s)):

print "-",

j = j + 1

print "+"

4



