JE – 329

V Semester B.Tech. (CSE/ISE) Degree Examination, February 2021
(CBCS Scheme)
18CIOE51B : PYTHON PROGRAMMING (Open Elective – I)

Time : 3 Hours Max. Marks : 100

Instructions : 1) *Answer Q.* ***1*** *is* ***compulsory****, it is MCQ.*
2) *Answer* ***any one*** *question from Q.* ***3*** *and Q.* ***4****, Q.****6*** *and Q.****7****, Q.****8*** *and Q.****9****.*
3) *Question No.* ***5*** *and* ***2*** *are* ***compulsory****.*

1. 1.1) Create a stationery list with the below data **(15×1=15)**

Prod = ['Pencil', 'Pen', 'Eraser', 'Pencil Box', 'Scale']

Price = [5, 10, 2, 20, 12]

Brand = ['Camlin', 'Rotomac', 'Nataraj', 'Camel', 'Apsara']

Stationery = [Prod, Price, Brand]

The command to add "Notebook" as the first element inside the first level of the list "Stationery" is

A) Stationery [0].append ('Notebook']

B) Stationery [0].insert(0, 'Notebook')

C) Stationery [0][1] = "Notebook"

D) Stationery [0].extend('Notebook')

1.2) D = ['MONDAY', 'TUESDAY', 'WEDNESDAY', 'THURSDAY', 'FRIDAY', 'SATURDAY', 'SUNDAY']. The command to print WEDNESDAY, THURSDAY from the list "D" is

A) print (D[–5], D[–4])

B) print (D[3], D[4])

C) print (D[2:5])

D) all of the above

P.T.O.

1.3) Create a dictionary 'Country' that maps the following countries to their captain.

India	Australia	New Zealand	England	Sri Lanka	Pakistan	Bangladesh	South Africa	West Indies
M S Dhoni	Finch	Williamson	Morgan	Karunaratne	Azam	Tamim	Kock	Pollard

The command to replace "MS Dhoni" with "Virat" is

A) Country ['India'] = "Virat"

B) Country.update({"India": "Virat"})

C) Both A and B

D) None of the above

1.4) In control structures, to mark the beginning of sequence of operations, _____ is used.

A) Curly braces – {}

B) Semi colon – ;

C) Indentation – (blank space)

D) Square bracket – []

1.5) What is output of code

```
i = 0
while i < 5;
  print (i)
  i + = 1
  if i = = 3;
    break
else;
    print (0)
```

A) 0 1 2 0

B) 0 1 2

C) error

D) none of the mentioned

1.6) What will be the output of the following Python code snippet ?

```
x = 'abcd'
for i in range(len(x));
  x[i].upper()
print (x)
```

A) abcd

B) ABCD

C) error

D) none of the above

1.7) What will be the output of the following Python code snippet ?

```
print ('Hello World'.istitle())
```

A) True
B) False
C) None
D) Error

1.8) If a = (1, 2, 3, 4), a[1 : –1] is

A) Error, tuple slicing doesn't exist
B) [2, 3]
C) (2, 3, 4)
D) (2, 3)

1.9) What will be the output of the following Python code ?

```
def test (i, j);
  if (i = = 0);
    return j
  else;
    return test (i – 1, i + j)
print (test(4, 7))
```

A) 13
B) 7
C) Infinite loop
D) 17

1.10) What is tail recursion ?

A) A recursive function that has two base cases
B) A function where the recursive functions lead to an infinite loop
C) A recursive function where the function doesn't return anything and just prints the values
D) A function where the recursive call is the last thing executed by the function

1.11) Which of the following cannot be returned by random.randrange (4) ?

A) 0
B) 3
C) 2.3
D) None of the mentioned

1.12) What will be the output of the following Python code ?

```
import re
m = re.search ('a', 'The blue umbrella')
print (m.re.pattern)
```

A) { }

B) 'The blue umbrella'

C) 'a'

D) No output

1.13) What will be the output of the following Python code ?

```
import turtle
  t = turtle.Pen()
  t.color(0, 0, 1)
  t.begin_fill()
  t.circle (15)
  t.end_fill()
```

A) Error

B) A circle filled in with the colour red

C) A circle filled in with the colour blue

D) A circle filled in with the colour green

1.14) Which function overloads the + operator ?

A) _add_()

B) _plus_()

C) _sum_()

D) None of the mentioned

1.15) What will be the output of the following Python code ?

```
lst = [1, 2, 3]
lst[3]
```

A) NameError

B) ValueError

C) IndexError

D) TypeError

2. A) Explain salient features of Python, why Python most widely used and accept language. 6

   B) Write a Python program that accept input from user, compute and display area of Rectangle, Square and Circle. 6

   C) Implement function reverse_string() that takes as string and returns the string with its characters reversed without using inbuilt function. For example, reverse_string ('Bengaluru') output 'urulagneB'. 5

3. A) Write Python statements that print the different formatted outputs using the already assigned variables first, middle and last.

   ```
   >>> first = 'Sir'
   >>> last = 'Visvesvaraya'
   >>> middle = 'M'
   ```

   4

   B) Implement function called openLog() which opens a file with filename or pathname as input argument. In addition to this task, the function openLog() create log file called 'log.txt' and record name of file opened and date and time at which file is opened. Finally, function openLog() returns reference to file opened. 7

   C) Explain what causes the SyntaxError, IndexError, ValueError, TypeError, in a statement. Then write a correct version of each Python statement with examples. 6

OR

4. A) Write a function acronym() that takes a phrase (i.e., a string) as input and then returns the acronym for that phrase. 4

   B) Teacher wish to conduct quiz for class of 5 students or more. It is possible to randomize the order of questions so that each quiz is unique, making it impossible for anyone to crib answers from any one else. Python code creates 5 different quiz paper and each quiz paper has 5 multiple-choice questions in random order. Python code also provides the correct answer and three random wrong answers for each question, in random order, Python code create the 5 quiz text files and answer keys to 5 quiz text files. 7

   C) Write and explain continue, break and pass statement for function divisors() that takes a positive integer n as input and returns the list of all positive divisors of n. 6

5. A) What is dictionary ? How it is different from list ? 4

B) With Python code explain the following

i) local namespace

ii) global name space and

iii) module name space. 6

C) Develop a simple game that teaches kindergartners how to add single digit numbers. Your function game () will take an integer n as input and then ask n single-digit addition questions. The numbers to be added should be chosen randomly from the range [0, 9] (i.e.,0 to 9 inclusive). The user will enter the answer when prompted. Your function should print 'Correct' for correct answers and 'Incorrect' for incorrect answers. After n questions, your function should print the number of correct answers. 7

6. A) Define class, object 6

Develop a class *BankAccount* that supports these methods.

a) _init_(): Initializes the bank account balance to the value of the input argument, or to 0 if no input argument is given.

b) withdraw(): Takes an amount as input and withdraws it from the balance.

c) deposit(): Takes an amount as input and adds it to the balance.

d) balance() : Returns the balance on the account.

B) Using Python design an application which is useful for customer and rental shop. In this application, the customer has following option :
List and check out bikes that are available for hire at shop
The customer has to pay on hourly basis ₹ 100 per hour per bike
The customer has another option to hire bike on daily basis for ₹ 500 per day. The customer has option to hire bike on weekly basis ₹ 3,000 per week. Family Rental, a promotion that can include from 3 to 5 Rentals (of any type) with a discount of 30% of the total price. 6

C) Implement a GUI app that contains two buttons labelled "Local time" and "Greenwich time". When the first button is pressed, the local time should be printed in the shell. When the second button is pressed, the Greenwich Mean Time should be printed. 5

OR

7. A) What is operator overloading, explain with examples. **4**

   B) Develop Python code that simulate the 24 buttons of the calculator. The simulated calculator performs same operation as physical calculator. **8**

   C) Explain overriding superclass method and extending superclass methods with example. **5**

8. A) Explain urllib.parser, urlib.request with Python code example. **4**

   B) Write python code to solve Tower of Hanoi problem using recursion. **7**

   C) Write a Python program that accept URL

   https://www.imdb.com/chart/top as input and display movie name, year and a brief summary of the top 10 random movies. **6**

   OR

9. A) What is List Comprehension ? Compute transpose of matrix using List Comprehensive. **4**

   B) Use recursive function defined for the Sierpinski triangle problem to change the colour of its three sub-triangles at some depth of recursion. The illustration below shows two cases : On the left, the colour is changed at depth 0 (the outmost level of recursion), on the right, at depth 2. If the user supplies a negative depth, the colour never changes. **8**

   C) With example code explain parallel computing in Python. **5**
