



SITARE University

INTERNAL ASSESSMENT - III PROGRAMMING METHODOLOGY IN PYTHON

Course Code - BCS1703

Date : Nov 21, 2024

Duration : 45 mins

Max Marks : 10

1. [1 mark x 2] Answer briefly in your own words:
 - a. When do we need to use a dictionary in python coding?
 - b. State two differences between a set and a list in python.
2. [3 marks] You have the daily petrol prices over the last few weeks from various cities in India. Store this information in a suitable format, and write a python function that takes this information as input and returns the average petrol prices for each of these cities.
3. [3 marks] Given a positive integer, find and print the sum of all prime numbers from 1 up to this number. Do not define any functions.
4. [2 marks] What is this python code trying to do? And will they work as expected? If not, how will you fix them?

```
def new_func(numbers):  
    result = []  
    for num in numbers:  
        calc = 1  
        for i in range(1, num + 1):  
            calc *= i  
        result.append(calc)  
    return result  
  
new_func([4,6,3])
```

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2+3+5



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Internal Assessment - III

Linear Algebra

Course Code : BMA1010

Date : Nov 19 2024

Duration : 60 mins

Marks : 10

Instructions

- You are allowed one A4 page for reference
- Latent - Predict how much you will get in this test. Write it on the first page.
- **Don't Panic**

1. Linear Transformation

[2 marks]

Write down the matrix for the following:

1.1. Transformation which rotates \hat{i} by θ anti-clockwise and \hat{j} by ϕ clockwise

1.2. Transformation that projects all the 2-D vectors on to the vector $\begin{pmatrix} -1 \\ 2 \end{pmatrix}$

2. System of Equations

[2 marks]

Show whether the following system of equations has no solution, unique solution or infinitely many solutions:

$$x + y + z = 2$$

$$y - 3z = 1$$

$$2x + y + 5z = 0$$

3. Eigenvalues and Eigenvectors $\begin{pmatrix} 6 & 1 \\ 1 & 1 \end{pmatrix}$

[3 marks]

Find eigenvalues and eigenvectors for the following matrix :

$$\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$$

4. Instagram Influencer

[3 marks]

You started an instagram account. 1 month after starting the account you had 750 followers. 3 months after starting the account you had 1500 followers. 5 months after starting the account you had 3000 followers. Calculate the best fit line and predict how many followers you will have 1 year after starting your account.

Assume that as soon as you started your account, you had some followers (Friends).



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INTERNAL ASSESSMENT - II

PROGRAMMING METHODOLOGY IN PYTHON

Course Code - BCS1703

Date : Oct 17, 2024

Duration : 45 mins

Max Marks : 10

1. [1 mark x 2] Answer briefly in your own words:

- ✓ a. Why do we need to use a list in python programming?
- ✓ b. What is the difference between for and while loop?

2. Write a python function with proper syntax and indentation (function should return the required output, and not print anything to terminal):

- ✓ a. [1 mark] Takes an integer n as input, and returns the sum of all even numbers from 1 to n .

- ✓ b. [3 marks] The Drama Club of Sitare University is preparing for their annual play. Out of 40 students who auditioned for the roles, 15 were found to be suitable. However, the play requires only 6 actors. The director needs to find out the total number of different ways in which she can cast these roles.

3. [2 marks x 2] What are these python codes trying to do? And will they work as expected? If not, how will you fix them? And can you improve its efficiency?

```
# find the sum of
✓ # all integers from 1 to n
n = 14
sum_num = 0
for i in range(n)
    sum_num = sum_num + i
```

```
print(sum_num)
```

```
def func(n):
    ✓ if n > 1:
        return False
    for i in range(2, n):
        if n % i == 0:
            return False
    return True
```

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INTERNAL ASSESSMENT - III

Course Code - BHU1027

Introduction to Communication & Ethics

Date : Nov 18, 2023

Duration : 45 mins

Max Marks : 10

Instructions: Attempt all sections. Write the full sentence. Attempt the paper in sequence.

A. Complete the following sentences with 'will', 'would', 'may' or 'might':

1. Sneha is a brilliant student. She has been working really hard for a competitive examination. She will clear her exams next year.
2. If you ask your sister kindly, she might let you borrow her bag.
will I borrow your pink bag?
3. Harsh has been accused of fraud.
He may be arrested by Monday.
4. The dog is looking quite unwell.
It might be suffering from worms.
5. You want to join your brother for the show in Paris.
would you come with me to Paris?

B. Fill in the blanks with correct tenses:

1. She played (play) in the national level tournament for the past 5 years.
2. The cat usually sleeps (sleep) in the backyard.
3. David kill'd (kill) Goliath and freed the villagers.
4. My grandmother buy (buy) groceries from the nearby market.
5. The troupe of dancers which had performed (perform) at the National festival in Denmark, is visiting our school next week.

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C. Complete the sentences with could/ would/ should/must/may.

1. w you like some tea?
2. I haven't seen Nelly for the last few days. She could have gone to her grandmother's.
3. Whose journal is that? It may belong to Raj.
4. John sh call Jennifer soon. She has been expecting his call.
5. They must not stay out at such an unearthly hour. They may get penalised for the same.

D. Complete the sentence with 'a', 'an' or 'the':

1. Fast internet services in rural areas provided the new opportunity for prosperity.
2. the kangaroo is a native of Australia.
3. India is one of the most populated countries in Asia.
4. He returned to the playground after an hour.
5. Sowmya does not believe in hygiene. She is an untidy girl.



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