

Total No. of Questions :4]

SEAT No. :

PE13021

[Total No. of Pages : 2

[6505]-1001

F.Y. B.Sc. (Information Technology)

IT 101MJ : PROBLEM SOLVING USING PYTHON

PROGRAMMING

(NEP 2024 Pattern) (Semester-I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following

[6×1=6]

- a) What is a keyword?
- b) Define Indentation.
- c) List the feature of an Algorithm.
- d) What is the use of pass statement?
- e) Define python.
- f) “Anonymous functions are defined using the lambda keyword”- comment True/ False.
- g) Trace the output:

```
my-list = [ 1, 2, 3, 4, 5]  
print(my-list[:2])
```
- h) What is the use of the tell () Function in file handling?

Q2) Attempt any four of the following:

[4×2=8]

- a) Write an algorithm to calculate the sum of two numbers.
- b) Explain command Line Arguments with example.
- c) Write a Python program to print length of a given string.
- d) Explain how to create a dictionary in python with a suitable example.
- e) Explain different File modes in Python.

P.T.O.

Q3) Attempt any two of the following:

[2×4=8]

- a) Write a python program to calculate the factorial of a given number.
- b) Write a python program that uses min () & max () functions to display the smallest and largest elements of a set.
- c) Write a python program to display the calendar for the entire year.

Q4) Attempt any two of the following

[2×4=8]

- a) Explain the different types of operators available in python with examples.
- b) Differentiate between a Flowchart and an Algorithm.
- c) Explain for loop with example.



Total No. of Questions :4]

SEAT No. :

PE13022

[Total No. of Pages : 2

[6505]-1002

F.Y. B.Sc. (Information Technology)

IT 103MJ : BASICS OF COMPUTER NETWORK

(NEP 2024 Pattern) (Semester-I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following.

[6×1=6]

- a) Write advantages of Star topology.
- b) Define protocol.
- c) What is bandwidth?
- d) List the service provided by Data Link Layer.
- e) Write the function of Repeater?
- f) List different tasks performed by the network layer.
- g) Define data rate.
- h) What is subnet?

Q2) Attempt any four of the following.

[4×2=8]

- a) What is an Analog and Digital Signal?
- b) List two similarities between TCP/IP and OSI model.
- c) Write a design issue of layers.
- d) What is data communication?
- e) Difference between Simplex and half Duplex.

P.T.O.

Q3) Attempt any two of the following.

[2×4=8]

- a) Describe Pure and Slotted ALOHA with a diagram.
- b) Explain shortest path routing.
- c) Write a difference between LAN and WAN.

Q4) Attempt any two of the following.

[2×4=8]

- a) Write a short note on CSMA/CD.
- b) What is switching? Explain message switching in detail.
- c) Explain OSI model in detail with a diagram.



Total No. of Questions : 4]

SEAT No. :

PE13023

[Total No. of Pages : 2

[6505]-1003

F.Y. B.Sc. (Information Technology)

IT - 105 - MJ : FUNDAMENTALS OF CLOUD COMPUTING

(2024 NEP Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following :

[6×1=6]

- a) What is cloud computing?
- b) What is a hypervisor?
- c) Mention one feature of cloud computing.
- d) What does AWS stand for?
- e) Name one Google cloud application.
- f) What is multi-cloud?
- g) Name one future trend in cloud computing.
- h) What is mobile cloud computing?

Q2) Attempt any four of the following :

[4×2=8]

- a) Define abstraction and virtualization.
- b) Explain the main components of Amazon Web Services (AWS).
- c) List and explain any two types of risks in cloud computing.
- d) What is cloud AI? State its importance.
- e) Explain intelligent SaaS with an example.

P.T.O.

Q3) Attempt any two of the following :

[2×4=8]

- a) Explain cloud service models with examples.
- b) Explain the advantages and limitations of virtualization.
- c) Explain Microsoft Azure and its services.

Q4) Attempt any two of the following :

[2×4=8]

- a) Explain load balancing in a virtualized environment.
- b) Explain grid computing architecture.
- c) Explain Google Cloud applications and services.

x x x

Total No. of Questions : 4]

SEAT No. :

PE13024

[Total No. of Pages : 2

[6505]-1005

F.Y.B.Sc. (Information Technology)

SEC 101 IT : DATABASE MANAGEMENT SYSTEM

(NEP 2024 Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following.

[6×1=6]

- a) List out the database users.
- b) What is normalization?
- c) Name Various DML commands.
- d) What is Big Data?
- e) What is the purpose of Order By clause?
- f) What is database?
- g) What is a Unique Constraint?
- h) What is a view?

Q2) Attempt any FOUR of the following.

[4×2=8]

- a) Differentiate between data and information.
- b) Define the term generalization and specialization.
- c) List out and explain datatypes in SQL.
- d) What is aggregate function? List out aggregate functions.
- e) List out set-operations in SQL. Explain any 1.

Q3) Attempt any two of the following.

[2×4=8]

- a) Write a note on cloud database.
- b) Explain the hierarchical Data model.
- c) Explain any four logical operators in SQL.

P.T.O.

Q4) Attempt any two of the following.

[2×4=8]

- a) What are the Advantages and Disadvantages of DBMS?
- b) Consider a database used to record the marks that student get in different exams of different courses offering. Construct an E-R diagram for the above database.
- c) Consider the following database-

Employee (eno, ename, designation, salary)

Department (dno, dname, d location).

There exists one-to-many relationship between Department and employee.
Using above database, solve the following queries.

- i) List the name of employees whose salary is above 50,000.
- ii) Count the number of employees in each department.
- iii) Update all employees salary, increase salary by 5000.
- iv) Find the employee details whose name starts with 'A'.

