

**G. H. PATEL COLLEGE OF ENGINEERING & TECHNOLOGY**  
**(CONSTITUENT INSTITUTION OF CVMU)**  
**BE - SEMESTER - 5 INTERNAL EXAMINATION - SEPTEMBER 2022**  
**102044505 - Web Development**

Date: 17/09/2022

Time: 11:15 AM to 12:30 PM

Maximum Marks: 40

**Instructions:**

1. Figures on the right indicate full marks.
2. Make the suitable assumption if required, do specify the same.

**Q. 1 (A) Answer the Following. (Each question carries one mark).****[08]**

- (i) What is HTTP? Discuss its request message format.
- (ii) List out any four website design issues.
- (iii) Difference between GET and POST methods.
- (iv) What is the use of meta tag? Give its example.
- (v) What is class selector in CSS?
- (vi) Explain the following CSS properties with example:
  - 1. z-index
  - 2. display
- (vii) List out various uses of JavaScript.
- (viii) Explain following keywords:
  - 1. var
  - 2. let

**Q. 2 (A) Explain CSS box model with example.****[05]**

**(B) Write HTML code to design the student registration form having following inputs:** [05]  
 Name, address, gender, branch (select from various branches), hobbies (allow to select multiple options) and email

**(C) Write HTML and JavaScript code to validate the following inputs:** [06]

1. Mobile number which must start with either 9, 8 or 7 and exactly of 10 digits.
2. Password which must begin with letter either small or capital and then followed by anything, end with digit and length between 7 to 15 characters.

**OR**

**(C) Write HTML and JavaScript code to find the factorial of a given number. Ask user to enter integer number and display the result on the same page.** [06]

**Q. 3 (A) What are the different ways to add style sheets in the web page? Explain them using example.** [05]

**(B) Write HTML, CSS and JavaScript code to do the following:** [05]

1. When button-1 is clicked then it will change the background color of paragraph-1.
2. When button-2 is clicked then it will change the case of paragraph-2 to upper case.

**(C) What is position property in CSS? Explain any three types of positioning with example.** [06]

**OR**

**(C) Explain popup boxes in JavaScript with example.** [06]

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**BE – SEMESTER - 5 INTERNAL EXAMINATION – SEPTEMBER 2022**  
**102045601 Design and Analysis of Algorithms**

Date: 16<sup>th</sup> September, 2022

Time: 11:15 AM to 12:30 PM

Maximum Marks: 40

**Instructions:**

1. Figures on the right indicate full marks.
2. Make the suitable assumption if required, do specify the same.

**Q. 1 (A) Answer the following questions.**

[08]

- (i) Define Time Complexity.
- (ii) Arrange following growth rates in ascending order. (^ indicates power & assume base of log is 2).  
1.  $\Theta(n\log n)$  2.  $\Theta(1)$  3.  $\Theta(n^*n^*n)$  4.  $\Theta(4 ^ \log n)$  5.  $\Theta(\log n)$
- (iii) What is an Algorithm?
- (iv) What is the time complexity of binary search algorithm in worst case?
- (v) Can we solve 0/1 Knapsack problem optimally using Greedy algorithm?
- (vi) Bellman ford is all pair shortest path algorithm (True / False).
- (vii) What is principle of optimality?
- (viii) Define Big 'Oh' Notation.

**Q. 2 (A) Solve the following recurrence relation  $T(n) = T(n/10) + T(9n/10) + n$ .**

[05]

**(B) Write an algorithm for Merge sort.**

[05]

**(C) What is recurrence? Derive recurrence equation for Tower of Hanoi and solve it using suitable method.**

[06]

**OR**

**(C) Analyze Quick sort algorithm for worst case portioning.**

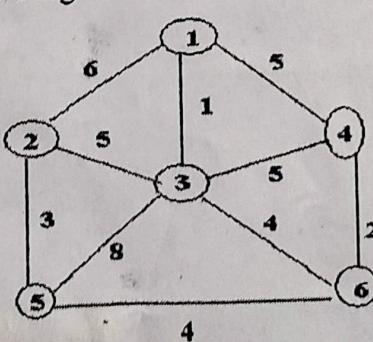
[06]

**Q. 3 (A) Solve Making Change problem using Dynamic Programming. (Denominations:  $d_1=1$ ,  $d_2=4$ ,  $d_3=6$ ). Give your answer for making change of Rs. 8.**

**(B) Solve the following Knapsack problem using Greedy method. Number of items = 5, knapsack capacity  $W = 100$ , weight vector = {50, 40, 30, 20, 10} and profit vector = {1, 2, 3, 4, 5}.**

[06]

**(C) Compute MST using Kruskal's algorithm.**



**OR**

**(C) Give the difference between:**

[06]

1. Dynamic Programming & Greedy algorithm
2. Dynamic Programming & Divide and Conquer.

**ADIT/GCET/MBIT**  
**(CONSTITUENT INSTITUTION OF CVMU)**  
**BE - SEMESTER - 5 INTERNAL EXAMINATION - SEPTEMBER 2022**  
**102045605: ADVANCED JAVA PROGRAMMING**

Date: 19/09/2022

Time: 11:15 AM To 12:30 PM

Maximum Marks: 40

**Instructions:**

1. Figures on the right indicate full marks.
2. Make the suitable assumption if required, do specify the same.

**Q. 1** (A) Answer the Following. (Each question carries one mark). [08]

- (i) What is deployment descriptor?
- (ii) Write a difference between Get and Post.
- (iii) How to delete a session in servlet?
- (iv) Write code to get a servlet context object.
- (v) When the destroy() method of filter is called?
  - A. The destroy() method is called only once at the end of the life cycle of a filter.
  - B. The destroy() method is called after the filter has executed doFilter() method
  - C. The destroyer() method is called after the filter has executed
  - D. None of the above.
- (vi) Write xml code to set servlet init parameter.
- (vii) List the methods to execute query in JDBC.
- (viii) Differentiate Generic and Http Servlet.

**Q. 2** (A) Explain J2EE architecture in detail. [05]

(B) Write difference between

1. ServletContext and ServletConfig
2. Statement and PreparedStatement

(C) Write a servlet program that takes Employee Id, Employee Name, Email, Age from html form and enter details as a new record in database table Employee . [06]

**OR**

(C) Write a java Program using PreparedStatement to insert records in the Page table. Page table consist of pageid,url,referral ,pagecount. [06]

**Q. 3** (A) Explain the life cycle of a servlet. [05]

(B) List various session tracking mechanisms and explain any one in detail with example. [05]

(C) Write a servlet filter program to log the client ip address, browser name and current timestamp. [06]

**OR**

(C) Write a html form with one textbox which accepts the user name. Also write a servlet program which prints username in capital letters with welcome message. [06]

\* \* \* \* \* ALL THE BEST \* \* \* \* \*

**G H PATEL COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(CONSTITUENT INSTITUTION OF CVMU)**  
**BE - SEMESTER - 5 INTERNAL EXAMINATION - SEPTEMBER 2022**  
**102044501 - COMPUTER NETWORKS**

Date: 14<sup>th</sup> September, 2022

Time: 11:15 AM to 12:30 PM

Maximum Marks: 40

**Instructions:**

1. Figures on the right indicate full marks.
2. Make the suitable assumption if required, do specify the same.

**Q. 1 (A) Answer the following.**

[08]

- (i) Define the term: Local Area Network.
- (ii) List out task of Transport Layer.
- (iii) What is the limitation of Mesh Topology?
- (iv) What is Byte Stuffing?
- (v) Define the term: Forward Error Correction.
- (vi) What is the difference between error detection and error correction?
- (vii) Differentiate CSMA/CD and CSMA/CA.
- (viii) What do you mean by Random Access Protocol?

**Q. 2 (A) Draw OSI Reference Model. Explain the tasks of Data Link Layer in detail.**

[05]

**(B) List out and explain different types of delay with respect to Packet Switching Network.**

[05]

**(C) Given the data word 1101101110 and the divisor 10101;**

[06]

- I. Show the generation of code word at the sender site (Using binary Division).
- II. Show the generation of data word at receiver site (assuming no errors).

**OR**

**(C) Draw the Sender and Receiver side-sliding window for the system using Selective Repeat ARQ for the following cases with m=4;**

[06]

- I. Frame 0, 1 sent and acknowledge.
- II. Frame 2, 3 sent and frame 2 lost.
- III. Frame 4, 5 and 6 sent and ACK 4 lost.

Note: Show Timers, RTO, if necessary.

**Q. 3 (A) Explain different types of ALOHA protocol with Diagram.**

[05]

**(B) List out different types of Guided Media. Explain any two in brief.**

[05]

**(C) What is Limited Contention Protocol? Explain Adaptive Tree Walk Protocol with Example.**

[06]

**OR**

**(C) What is flow control? Explain Go-Back-N ARQ mechanism with diagram.**

[06]

\* \* \* \* \* ALL THE BEST \* \* \* \* \*

**ADIT/GCET/MBIT**  
**(CONSTITUENT INSTITUTION OF CVMU)**  
**BE - SEMESTER - 5 MID-SEMESTER EXAMINATION - SEP 2022**  
**Python for Data Science (102045603)**

**Date: 15-09-2022**

**Time: 11:15 AM to 12:30 PM**

**Maximum Marks: 40**

**Instructions:**

1. Figures on the right indicate full marks.
2. Make the suitable assumption if required, do specify the same.

**Q.1 (A) Answer the Following. (Each question carries one mark).**

**[08]**

- (i) How can we define a function in Python?
- (ii) What will be the output of the following Python code?

```
import pandas as pd
import numpy as np
s=pd.Series(np.random.randn(4))
print s.ndim
```
- (iii) What will be the output of the following Python code?

```
a={1:6,2:4,3:4}
a.pop(2)
print(a)
```
- (iv) Differentiate range() and arrange() function in python.
- (v) What is web scraping? Which python library is used for it?
- (vi) List out immutable data types in python data structure.
- (vii) Explain iloc() function with suitable example.
- (viii) Differentiate rand() and randn() function in numpy.

**Q.2 (A) Explain the life cycle of Data Science.**

**[05]**

**(B) Explain Beautiful soup. Write any two functions of it with examples.**

**[05]**

**(C) Generate a 1-D array of 10 random integers. Each integer should be a number between 1 and 20 (inclusive)**

1. Convert a 1-D array into a 2-D array with 5 rows
2. Get all items between 5 and 10 from a 2D array
3. Delete the last row from the 2D array
4. Add 100 to each element in the 2D array and then flatten it

**OR**

**(C) 1. Write a python program to find the largest element in an array.**

**[03]**

**2. Explain Univariate, bivariate, and Multivariate data analysis methods with examples.**

**[03]**

**Q.3 (A) Write a python program to create the following data frames df1, df2.**

**Write all possible methods to combine the data frames.**

df1	df2
A B	A B
1 A1 B1	3 A3 B3
2 A2 B2	4 A4 B4

**[05]**

- (B)** Read the CSV file student\_info.csv ('student\_id', 'name', 'subject1', 'subject2') in [05]  
dataframe.  
a. Find the total number of rows and columns in the data frame.  
b. Print subject-wise average result.  
c. Create student\_id as the index column.  
d. Add a dept\_name in the dataframe.
- (C)** Create the following data frame using pandas and perform all the descriptive [06]  
statistics(min, max, mean, mode, range, median, skew, variance, standard  
deviation) on the dataset below using the statistics module of python and  
scipy.stats package.

	name	age	score
0	a	23	80
1	b	25	70
2	c	21	65
3	d	30	89
4	e	28	43

**OR**

- (C)** i. What do you mean by the slicing operation in a string of python? Write an [03]  
example of slicing to fetch first name and last name from the full name of a  
person and display it.
- ii. Explain any three python libraries and their use in python. [03]

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