

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : WINTER : 2024
SUBJECT: STATISTICS

Day : Tuesday
Date : 03/12/2024

W-26289-2024

Time : 02:00 PM-05:00 PM
Max. Marks : 100

N. B. :

- 1) Attempt **ANY FIVE** questions from Section – I and attempt **ANY TWO** questions from Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable calculator is **ALLOWED**.
- 4) Answers to both the sections should be written in **SAME** answer book.
- 5) Assume suitable data, if necessary.

SECTION – I

- Q. 1** Calculate Range, standard deviation and coefficient of variation in respect of the marks obtained by 10 students given below: (12)

50, 55, 57, 49, 54, 61, 64, 69, 58, 56

- Q. 2** Mean of 100 items is found to be 30. If at the time of calculation two items are wrongly taken as 32 and 12 instead of 23 and 11, find the corrected mean. (12)

- Q. 3** a) What are advantages of Tabular representation of data? (06)

- b) Explain different types of frequency distributions. (06)

- Q. 4** Represent following data collected for heights of students in a class using: (12)

- i) Histogram and frequency polygon
- ii) Ogive curves

Height in (cms.)	140 – 150	150 – 160	160 – 170	170 – 180	180 – 190
No. of Students	9	21	34	26	5

- Q. 5** Calculate mean, median, mode for the following data: (12)

X	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
f(x)	12	29	33	20	16

- Q. 6** a) Explain different types of correlation coefficients. (06)

- b) Explain steps in calculating Karl Pearson's coefficient of correlation. (06)

- Q. 7** Write short notes on **ANY THREE** of the following: (12)

- a) Standard Error
- b) Advantages of mean
- c) Linear Regression and its application
- d) Graphical Representation of data

P. T. O.

SECTION – II

- Q. 8 Calculate standard deviation and mean deviation for the following data: (20)

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
f(x)	13	17	21	19	10

- Q. 9 Calculate Karl Pearson's coefficient of correlation for the following data and comment on the result: (20)

X	105	110	112	108	111	116	120	104	115	125
Y	39	41	45	38	48	58	60	35	54	69

- Q. 10 Find the coefficients of regression and hence the equation of the lines of regression for the following data: (20)

Estimate the value of Y when X = 50 and the value of X when Y = 90.

X	78	36	98	25	75	82	90	62	65	39
Y	84	51	91	60	68	62	86	58	53	47

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : WINTER : 2024
SUBJECT: JAVA PROGRAMMING

Day : Saturday
Date : 30/11/2024

W-26288-2024

Time : 02:00 PM-05:00 PM
Max. Marks : 100

N. B. :

- 1) Attempt ANY FIVE questions form Section – I. Each question carries 12 marks.
- 2) Attempt ANY TWO questions form Section – II. Each question carries 20 marks.
- 3) Figures to the right indicate FULL marks.
- 4) Answers to both the sections should be written in SAME answer book.

SECTION – I

- Q. 1** Explain different operators used in Java with example. (12)
- Q. 2** What is constructor? Explain its different types. (12)
- Q. 3** Explain different access modifiers used in Java with suitable example. (12)
- Q. 4** Explain Object Oriented Programming. (12)
- Q. 5** What is an interface? Why do we need to of interface? Justify your answer with suitable example. (12)
- Q. 6** Explain dynamic dispatch method with suitable example. (12)
- Q. 7** Write short notes on ANY THREE of the following: (12)
- a) Pass by Value
 - b) Packages in Java
 - c) throw and throws Keyword
 - d) this keyword

SECTION – II

- Q. 8** Write a program in Java that will print the information such as name of the employee, Joining date of employee and employee salary for the three different objects of employees by creating a class named 'Employee'. (20)
- Q. 9** a) Write a Java program to check whether a given alphabet is vowel or consonant using switch case statement. (10)
- b) Write a Java program to reverse a given number. (10)
- Q.10** Write a program to print the area of a rectangle by creating a class named 'Area' taking the values of its length and breadth as parameters of its constructor and define a method named 'return Area' which will display the area of the rectangle. (20)

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : WINTER : 2024
SUBJECT: SOFTWARE ENGINEERING

Day : Thursday
Date : 28/11/2024

W-26287-2024

Time : 02:00 PM-05:00 PM
Max. Marks : 100

N.B.

- 1) Attempt **ANY FIVE** questions from Section – I.
- 2) Attempt **ANY TWO** questions from Section – II.
- 3) Figures to the **RIGHT** indicate **FULL** marks.
- 4) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** Define software engineering and explain its significance in the development of computer application (12)
- Q.2** Explain the concept of feasibility study in software engineering. Discuss the key factors considered during a feasibility study (12)
- Q.3** Discuss the role of requirement engineering in software development. explain the difference between functional and non-functional requirement (12)
- Q.4** Explain the importance of analysis in software design. Discuss how structure system analysis contributes to the development of robust and scalable software solution (12)
- Q.5** Define software testing and its objectives in ensuring software quality. (12)
- Q.6** Describe the various software maintenance activities performed during the software life cycle (12)
- Q.7** Write Short Note on (ANY TWO) (12)
A) Black Box Testing
B) White Box Testing
C) Software Reliability

SECTION – II

- Q.8** Discuss the quality control measure that digital technologies should implement throughout the software development lifecycle to meet the client expectation. Additional outline strategy for software maintenance and update post deployment (20)
- Q.9** Identify potential risks associated with developing the e-commerce platform and propose mitigation strategies for each risk (20)
- Q.10** Develop a comprehensive software testing plan for ecommerce platform (consider Unit - integration and acceptance testing) (20)

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : WINTER : 2024
SUBJECT: OPERATING SYSTEMS

Day : Tuesday
Date : 26/11/2024

W-26286-2024

Time : 02:00 PM-05:00 PM
Max. Marks : 100

N.B.

- 1) Attempt **ANY FOUR** questions from Section-I and **ANY TWO** questions from Section-II
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Answers to both the Sections should be written in **SAME** answer book.

SECTION-I

- Q.1** a) Explain structures of operating system with their merits and demerits. (08)
b) What is system call? Explain with example. (07)
- Q.2** a) Explain multilevel queue with feedback scheduling algorithm. (08)
b) What is Process? Explain relationships between processes. (07)
- Q.3** a) Differentiate between Logical address space and Physical address space. (08)
b) Discuss the concept of thrashing with its demerits. (07)
- Q.4** Explain Banker's Algorithm in detail. (15)
- Q.5** a) What is a file system? Give the types of it. (08)
b) Explain about file system security. (07)
- Q.6** Write Short notes on **ANY THREE** of the following: (15)
a) Direct Memory Access
b) Semaphore
c) Fragmentation
d) Process states
e) Multiprogramming

SECTION-II

- Q.7** Consider following case. (20)

Job. No.	Arrival Time	Run Time (min)
P1	10.00	8
P2	10.02	4
P3	10.07	3
P4	10.10	4

Calculate average waiting time and turnaround time in case of:
i) SJF ii) SRTN

- Q.8** Consider the following page reference string. (20)
0,3,2,3,1,0,2,3,4,2,1,0
Find out page to be replaced at the end using LRU with matrix.

- Q.9** Consider the hard disk having 130 tracks. Currently head is on track number 111 and moving outside. Following is the queue of requests kept in FIFO order (consider seek time=0.3 second) (20)
35,104,120,110,76,99,112,127,103,65
Calculate total time required to move all these tracks by using following disk scheduling Algorithms.
1) FCFS 2) SSTF 3) SCAN
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