BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: STATISTICS

Day : Saturday
Date : 24/05/2025

S-26289-2025

Time : 10:00 AM-01:00 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. Find the missing frequency if the given mean of the data is 35. (12)

X:	0-10	10-20	20-30	30-40	40-50	50-60
f	10	20	x	50	40	30

Q 2. (a) Explain following graphical representations with their proper application – (06)
(i) Histogram
(ii) Frequency polygon and Curve
(iii) Ogive Curves
(b) Represent following data using Ogive Curves and find the median. (06)

Marks less than	10	20	30	40	50	60
No. of students	10	30	60	110	150	180

Q 3. For the following data find Standard Deviation. (12)

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
f	4	7	7	14	16	14	8	15	5

Q 4. (a) Explain mean, median and mode as measures of central tendency. (06)
(b) For 100 students a test of 50 marks was conducted. The mean marks were calculated as 34.67. Afterwards it was found that marks of 3 students were marked as 34, 23 and 13 instead of 43, 32 and 31. Find the corrected mean with new marks. (06)

Q 5. (a) Define the term 'Statistics'. Explain scope and Limitations of statistics. (06)

	(b) Explain different methods of data representation used in statistics.	(06)
Q 6.	Explain following terms – (a) Covariance (b) Variance (c) Regression Coefficient	(12)
Q 7.	Write short notes on ANY THREE of the following -	(12)
a)	Regression Equation	
b)	Primary data and Secondary data	
c)	Types of Correlation	
d)	Merits and demerits of Mode	

Section – II

Q 8. For the following 50 observations calculate mean, median and mode after representing it in tabular format. (20)

23	38	41	32	03	28	29	45	36	39
2	30	9	15	31	42	39	6	21	20
17	37	21	25	17	19	40	32	17	19
20	30	34	28	21	26	49	46	21	32
41	40	48	30	39	4	12	3	9	10

Q 9. For the following data calculate regression coefficients and define regression equations for both variables – (20)

X	12	14	16	15	14	16	15	17	12	12
Y	14	15	14	12	16	14	16	16	16	15

Q 10. A panel of judges A and B graded seven debaters and awarded the following marks – (20)

Debater	1	2	3	03	5	6	7
Marks by Judge A	40	34	28	30	44	38	31
Marks by Judge B	32	39	26	30	38	34	28

Find the coefficient of correlation between the marks assigned by two judges and comment.

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: DBMS-II

Day : Thursday
Date : 22/05/2025

S-18769-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) **Q. No. 4** from Section-I is COMPULSORY.
2) Attempt **ANY TWO** questions from **Q.No. 1** to **Q. No. 3** in **Section – I.**
3) Attempt **ANY TWO** questions from **Q.No. 5** to **Q. No. 7** in **Section – II.**
4) Figures to the **RIGHT** indicate **FULL** marks.
5) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

Q.1 What is data constraint? Explain the different syntax of defining primary key on the table with example. **(12)**

Q.2 What is oracle? Explain various features of oracle in detail. **(12)**

Q.3 Explain the following SQL commands. **(12)**
a) Desc b) Drop Table c) Alter Table d) Update

Q.4 Write short notes on **ANY THREE** of the following : **(12)**
a) Commit and Rollback commands
b) Trigger
c) Oracle data types
d) Subqueries

SECTION – II

Q.5 Write SQL queries for the following
a) Create the following table with proper constraints. **(4)**
Employee (ENo, EName, City, Deptname)
Project (PNo, PName, Status)
EmpProject (ENo, PNo, NoOfDays)
b) Insert 2 records in each table. **(2)**
c) Display the project with status "Completed" **(2)**
d) Display EName, PName, NoOfDays, Status, where project status is "InProcess". **(2)**
e) Add PhoNo field in Employee table. **(2)**

Q.6 What is joins? Explain the different types of joins with example. **(12)**

Q.7 Consider table Employee with ENo(PK), EName, DNo, Salary. Write a PL/SQL block using cursor to display the top 5 highly paid employee. **(12)**

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: JAVA PROGRAMMING

Day : Thursday
Date : 22/05/2025

S-26288-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.:

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

SECTION – I

Q.1 What are the different control structures are available in Java? Explain looping constructs with suitable example. [12]

Q.2 Explain exception handling mechanism with a suitable example. [12]

Q.3 Explain polymorphism and encapsulation concept with suitable example. [12]

Q.4 Explain InputStream and OutputStream classes in Java with suitable example. [12]

Q.5 a) What is an interface? Give one example to demonstrate interface. [07]

b) What are the different data types used in Java? [05]

Q.6 What is an array? Explain different types of arrays with suitable example. [12]

Q.7 Write short notes on **ANY THREE** of the following: [12]

a) super
b) static
c) JVM
d) abstract class

SECTION – II

Q.8 Create a class **Emp** with the following details: [20]
Data Members: Eid, Ename, Basic, HRA, DA
Member Functions: Display (), Cal_Salary ()
Write a program in Java to calculate the Salary of Employee in Cal_Salary() method based on the formula: Net_Salary = Basic + HRA + DA.
Display the details of employee using Display () method.

Q.9 a) Design an interface Shape with method area () returning double. Implement it in classes Rectangle and Circle. Also, write a code in Java to use these classes. [10]

b) Explain the package concept with a suitable example. [10]

Q.10 a) Write a java program to print all the numbers that are divisible by 7 between 91 to 991. [10]

b) Write a recursive function in Java to find factorial of a number. [10]

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: DBMS-II

Day : Thursday
Date : 22/05/2025

S-18769-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) **Q. No. 4** from Section-I is COMPULSORY.
2) Attempt **ANY TWO** questions from **Q.No. 1** to **Q. No. 3** in **Section – I.**
3) Attempt **ANY TWO** questions from **Q.No. 5** to **Q. No. 7** in **Section – II.**
4) Figures to the **RIGHT** indicate **FULL** marks.
5) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

Q.1 What is data constraint? Explain the different syntax of defining primary key on the table with example. **(12)**

Q.2 What is oracle? Explain various features of oracle in detail. **(12)**

Q.3 Explain the following SQL commands. **(12)**
a) Desc b) Drop Table c) Alter Table d) Update

Q.4 Write short notes on **ANY THREE** of the following : **(12)**
a) Commit and Rollback commands
b) Trigger
c) Oracle data types
d) Subqueries

SECTION – II

Q.5 Write SQL queries for the following
a) Create the following table with proper constraints. **(4)**
Employee (ENo, EName, City, Deptname)
Project (PNo, PName, Status)
EmpProject (ENo, PNo, NoOfDays)
b) Insert 2 records in each table. **(2)**
c) Display the project with status "Completed" **(2)**
d) Display EName, PName, NoOfDays, Status, where project status is "InProcess". **(2)**
e) Add PhoNo field in Employee table. **(2)**

Q.6 What is joins? Explain the different types of joins with example. **(12)**

Q.7 Consider table Employee with ENo(PK), EName, DNo, Salary. Write a PL/SQL block using cursor to display the top 5 highly paid employee. **(12)**

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: SOFTWARE ENGINEERING

Day : Wednesday
Date : 21/05/2025

S-18768-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1. **Q.** No. 4 is **COMPULSORY.**
2. Attempt **ANY TWO** questions from **Q.** No. **1, 2, 3** in Section – **I**
3. Attempt **ANY TWO** questions from **Q.** No. **5, 6, 7** in Section – **II**
4. Figures to the **RIGHT** indicate **FULL** marks.
5. Answers to both the sections should be written in **SAME** answer book.

SECTION – I

Q.1 a) What is Software Engineering? Explain the members involved in software development. **(06)**

b) Explain the difference between Waterfall and Spiral model. **(06)**

Q.2 a) What is Formal Technical Review(FTR)? Explain the review meeting. **(06)**

b) What is Cohesion? Explain different types of Cohesion. **(06)**

Q.3 a) Explain SRS document with example. **(06)**

b) Explain with example Design Tree and Decision table. **(06)**

Q.4 Write Short Notes on **ANY THREE** of the following : **(12)**

a) Data Dictionary

b) Feasibility Study

c) SQA Activities

d) Validation

SECTION – II

Q.5 a) What is Software Maintenance? Explain types of Maintenance. **(06)**

b) What is mean by Testing? Explain different types of testing. **(06)**

Q.6 a) What is DFD (Data Flow Diagram)? Explain different levels of DFD with example. **(06)**

b) Explain SCM process (Software Configuration Management). **(06)**

Q.7 Write Short Notes on **ANY THREE** of the following : **(12)**

a) Maintenance Process

b) Coupling

c) Requirement engineering

d) Cost Benefit Analysis

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: SOFTWARE ENGINEERING

Day : Tuesday
Date : 20/05/2025

S-26287-2025

Time : 10:00 AM-01:00 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 Explain the evolution of software engineering. Illustrate the importance of software engineering in the context of modern technology-driven societies. **(12)**

Q.2 Define software process and explain the different process model used in software development **(12)**

Q.3 Explain the concept of white-box testing and black-box testing. Compare and contrast these two testing techniques **(12)**

Q.4 Discuss the role of quality control in software engineering. Explain how quality assurance processes contribute to delivery of high quality software products. **(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) Waterfall Model

B) Spiral Model

C) Software Reliability

SECTION – II

Q.8 TechASP Solution receiving complaints from clients regarding the quality of products. Propose the quality control framework to address the identified issues and ensure delivery of high quality software product. **(20)**

Q.9 Identify potential risks associated with developing the e-commerce platform and propose mitigation strategies for each risk **(20)**

Q.10 Xldigital technology is in the initial phase of understanding the clients requirements and establishing project goals. Describe the importance of software engineering principles in this phase **(20)**

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: OPERATING SYSTEMS

Day : Tuesday
Date : 20/05/2025

S-18767-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.:

1) **Q.No.4 is COMPULSORY.**
2) Attempt **ANY TWO** questions from Q.No.1 to Q.No.3 from Section – I.
3) Attempt **ANY TWO** questions from Q.No.5 to Q.No.7 from Section – II.
4) Answers to both the sections should be written in the **SAME** answer book.
5) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 a) What are system calls? Explain different categories of system calls with example. **[06]**

b) What is a scheduler? Explain types of schedulers exist in an OS. **[06]**

Q.2 a) Explain the process of conversion of virtual addresses into physical address with help of example. **[06]**

b) What is semaphore? Give the characteristics of it. **[06]**

Q.3 a) Explain two deadlock avoidance algorithms. **[06]**

b) How free space is managed? Explain. **[06]**

Q.4 Write short notes on **ANY THREE** of the following: **[12]**

a) Batch operating system
b) Compaction
c) Conditional critical region
d) Design principles of security
e) Interrupt handler

SECTION – II

Q.5 Consider the following case: **[12]**

Job No.	Arrival Time (AM)	Run Time (min)
P_1	10.00	7
P_3	10.01	4
P_2	10.03	1
P_4	10.06	2

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

Q.6 Consider the following page reference string: **[12]**

0, 3, 2, 4, 3, 0, 1, 2, 4, 3, 0, 2, 1, 4.

Find out page to be replaced at the end with LRU with Matrix.

Q.7 Consider hard disk with 200 tracks, numbered 0 to 199. Currently head is serving a request at track number 141 and moving outside. The queue of requests is kept in the FIFO order. **[12]**

86, 147, 91, 177, 94, 150, 100, 175, 130, 145, 179

Calculate total time required to move all these tracks using following disk scheduling algorithms. (Consider seek time = 0.3 sec.)

i) FCFS ii) SSTF

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-III : SUMMER : 2025
SUBJECT: OPERATING SYSTEMS

Day : Saturday
Date : 17/05/2025

S-26286-2025

Time : 10:00 AM-01:00 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 the concept of virtual machine. Bring out its advantages. **(08)**
b) Differentiate between multitasking and multiprogramming. **(07)**

Q.2 a) Explain process states and process state transition in brief. **(08)**
b) What do you mean by PCB? Give the content of it. **(07)**

Q.3 What is virtual memory? Explain the process of conversion of virtual address into physical address with help of suitable example. **(15)**

Q.4 a) What is deadlock? What are the four necessary conditions for a deadlock to occur. **(08)**
b) Explain how we can prevent deadlock. **(07)**

Q.5 a) Discuss various access methods of file. **(08)**
b) Discuss principles of input output hardware. **(07)**

Q.6 Write Short notes on **ANY THREE** of the following: **(15)**
a) Interrupt handling
b) File system security
c) Semaphore
d) Swapping
e) Round Robin Scheduling

SECTION-II

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

Process. No.	Arrival Time	Run Time (min)
P1	10.00	10
P3	10.04	4
P4	10.06	6
P2	10.08	5

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

Q.8 Main memory consists of operating system at head, below it 100 k hole, then some parts of memory in use, below it 15 k hole, then some parts of memory in use, below it 75 k hole, then some part memory in use, below it 35k hole is there. A request of 30 k process is received to accommodate the memory. Draw basic structure of memory and implement following algorithms on it. **(20)**
a) Best fit b) First fit c) Worst fit d) Next fit

Q.9 Consider the hard disk having 199 tracks. Currently head is on track number 76 and moving outside. Following is the queue of requests kept in FIFO order. **(20)**
35,186,76,99,112,127,103,65, 75,199,77
Calculate total track movements to move all these tracks by using following disk scheduling Algorithms.
1) FCFS 2) SSTF 3) SCAN

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