Time allowed: 2:40 Hours | Total Marks: 60

Note: Sections 'B' 'C' and 'D' comprise pages 1-3 and questions therein are to be answered on the separately provided Answer Book. Use supplementary answer sheet i.e., sheet B if required. Write your answers neatly and legibly.

SECTION – B (Marks 18)

Note: Section-B consists of following topics of the syllabus:

1. Overview of Computer System
2. Computer Memory
3. Central Processing Unit
4. Inside System Unit

Q.2 Attempt any SIX parts from the following. All parts carry equal marks. (6 × 3 = 18)

i. Answer the following question using the grid box given below:

#	Questions (Select the right grid box number(s) for your answer)	Box No.
a	Identify type of computer built by Cray Incorporation.	
b	Which type of computer use VLSI technology?	
c	How many user(s) can a Mini computer support?	

GRID BOX

1 Super Computer	4 Industrial process control	7 IBM System/36
2 Hundreds of Users	5 Atomic Energy Research Centre	8 Mini computer
3 Micro Computer	6 Thousands of Users	9 Main frame

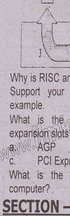
ii. Differentiate between hand-held scanner and barcode reader.

iii. State three differences between magnetic memory and optical memory.

iv. If the size of Memory Buffer Register (MBR) is 8 bit and size of Memory Address Register (MAR) is 16 bit, calculate the maximum size of memory in bytes that can be accessed.

v. Write down functions of any three special purpose registers.

vi. Label the following diagram to show a machine cycle:



vii. Why is RISC architecture better than CISC? Support your answer with the help of example.

viii. What is the purpose of the following expansion slots?
a. AGP b. PCI
c. PCI Express

ix. What is the function of BIOS in the computer?

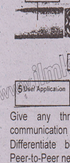
SECTION – C (Marks 18)

Note: Section-C consists of following topics of the syllabus:

5. Network Communication Protocol
6. Wireless Communication
7. Database Fundamentals
8. Database Development

Q.3 Attempt any SIX parts from the following. All parts carry equal marks. (6 × 3 = 18)

i. Label different parts, name and uses of the following cable:



ii. Give any three limitations of guided communication media.

iii. Differentiate between Client-Server and Peer-to-Peer networks.

iv. Categorize the following topologies as per characteristics (Bus, Mesh, Ring, Star):

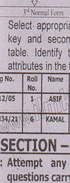
Expensive	Least Cabling

v. Write any three common applications of Infra-Red technology in daily life.

vi. Write any three responsibilities of DBA.

vii. A team consists of many players and a player plays for only one team. Draw an ER diagram and identify cardinality for the said situation.

viii. What actions should be taken to complete the normalization process given below?



ix. Select appropriate Primary key, candidate key and secondary key in the following table. Identify the number of tuples and attributes in the table.

Reg No.	Roll No.	Name	DOB	Address	Phone
CS12/05	1	ASIF	12-05-1995	G-7 IBD	923587
MGN34/21	6	KAMAL	26-08-2000	G-9 IBD	927375

SECTION – D (Marks 24)

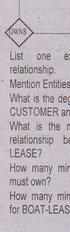
Note: Attempt any THREE questions. All questions carry equal marks. (3 × 8 = 24)

Q.4 Describe the following modern uses of computer in today's life with examples: (8)
i. Mobile Computing
ii. Internet of things
iii. Cloud Computing

Q.5 Explain different types of Instruction Formats with examples. (8)

Q.6 How is OSI model different from TCP/IP model? Describe the protocols and devices used on different layers of OSI model. (8)

Q.7 Understand the ER Diagram and write the answers of following questions: (8)



i. List one example of one-to-many relationship.

ii. Mention Entities used in ER diagram.

iii. What is the degree of relationship between CUSTOMER and LEASE?

iv. What is the minimum cardinality of the relationship between CUSTOMER and LEASE?

v. How many minimum BOATs an OWNER must own?

vi. How many minimum BOATs are required for BOAT-LEASE?