

Version No.			

ROLL NUMBER						



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1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
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1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

COMPUTER SCIENCE HSSC-I

SECTION – A (Marks 13)

Time allowed: 20 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

Q.1 Fill the relevant bubble for each part on the bubble sheet. Each part carries one mark.

- Which one of the following is the most suitable to print salary slips of 2000 employees on a very cheap cost?
 - Dot matrix printer
 - Desk jet printer
 - Laser printer
 - Plotter
- Cache Memory works between:
 - RAM and Processor
 - RAM and ROM
 - Processor and Hard Disk
 - ROM and Hard Disk
- In which of the following categories a memory card lies?
 - Magnetic Memory
 - Secondary Memory
 - Optical Memory
 - Flash Memory

4. How many memory locations can be addressed with 64-bit address bus?
 - a) 32
 - b) 64
 - c) 2^{32}
 - d) 2^{64}
5. Which one of the following expansion slots has highest video performance?
 - a) PCI
 - b) PCI Express
 - c) SATA
 - d) AGP
6. Which one of the following registers holds the address of the next instruction to be executed?
 - a) Program Counter
 - b) Instruction Register
 - c) Counter Register
 - d) Data Register
7. The IP Address 191.10.1.0 lies in:
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D
8. Email sending mechanism is an example of the following mode of___ communication.
 - a) Simplex
 - b) Simple Duplex
 - c) Half Duplex
 - d) Full Duplex
9. Cellular communication dividing the physical region into sections us called:
 - a) Pods
 - b) Cells
 - c) Cubes
 - d) Sectors
10. Which one of the following wireless technologies is used in TV remotes and TV?
 - a) Infrared

- b) Bluetooth
 - c) Wi-Fi
 - d) Wi-Max
11. What is the type of this statement? **“Create table Student”**
- a) DCL
 - b) DDL
 - c) DXL
 - d) DML
12. The relationship between entities AUTHOR and BOOK is:
- a) Unary
 - b) Binary
 - c) Ternary
 - d) Recursive
13. Identify the cardinality of the following relationship:
- One COLLEGE can have many DEPARTMENTS, One DEPARTMENT belongs to one COLLEGE.
- a) One-to-One
 - b) One-to-Many
 - c) Many-to-Many
 - d) Many-to-One
-



Federal Board HSSC-I Examination
Computer Science Model Question Paper
(Curriculum 2009)

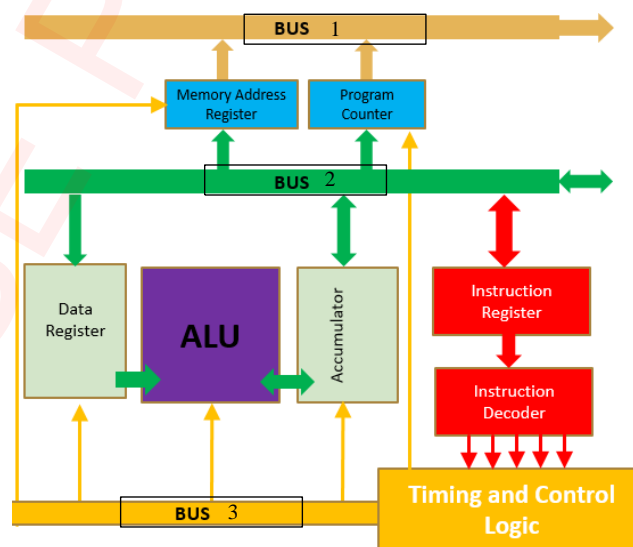
Time allowed: 2.40 hours

Total Marks: 62

Note: Answer all parts from Section 'B' and all questions from Section 'C' on the **E-sheet**.
Write your answers on the allotted/given spaces.

SECTION – B (Marks 42)

- Q2.** Attempt all parts from the following. All parts carry equal marks. (14×3=42)
- Write down purpose of any three (03) ribbon cables. (3)
 - Write down any one application of the following scanner types: (1+1+1)
 - Handheld scanner
 - Flatbed scanner
 - Optical scanner
 - Give one (01) advantage and two(02) disadvantages of wireless network card. (1+1+1)
 - Differentiate between Intel P4 and AMD Athlon processors with reference to clock speed, bus width and architecture. (3)
- OR**
- Give three differences between impact and non-impact printers. (3)
 - What is an Instruction Cycle? Illustrate with diagram. (2+1)
- OR**
- Write down three differences between SIMM and DIMM memory chips. (1+1+1)
 - The following Microprocessor diagram has three internal system buses, observe the diagram carefully and name the Buses shown in the diagram. (3)



- vii. Provide any three (03) differences between Client-Server and Peer-to-Peer network architecture. (3)

OR

Categorize the following topologies as per their characteristics (Star, Ring, Bus, Mesh). (1.5+1.5)

Expensive	Least Cabling

- viii. Give any three limitations of Mobile Communication System. (1+1+1)

OR

Write any three differences between volatile and non-volatile memory. (1+1+1)

- ix. Complete the required information in the following table against the said satellites. (1+1+1)

Satellites	Distance from the Earth	Purpose
GEO		
MEO		
LEO		

- x. Write down any one usage each of Wi Max, Bluetooth and Infra-Red technologies. (1+1+1)

OR

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. (2+1)

- xi. Give any three differences between synchronous and asynchronous transmission. (3)

- xii. What are Columnar, Tabular and Datasheet Form views? (1+1+1)

OR

What is the purpose of following types of queries? (1+1+1)

- a. Update b. Select c. Delete

- xiii. Write down any three (03) advantages of using DBMS over file management system? (3)

- xiv. Specify the suitable data types for Roll No, DOB and Address. Identify the suitable Primary key. Also write down the number of tuples and attributes in the table. (1.5+0.5+1)

Registration No.	Roll No.	Name	DOB	Address	Phone
CS12/05	1	ALI	12-05-1999	G-7 Islamabad	9233658721
CS34/21	2	AMNA	26-08-1999	Cantt Rawalpindi	9234737536

SECTION – C (Marks 20)

Note: Attempt all questions. Marks of each question are given within brackets. (5x4 =20)

Q.3 Define port. Discuss any two (02) different types of ports. (1+4)

OR

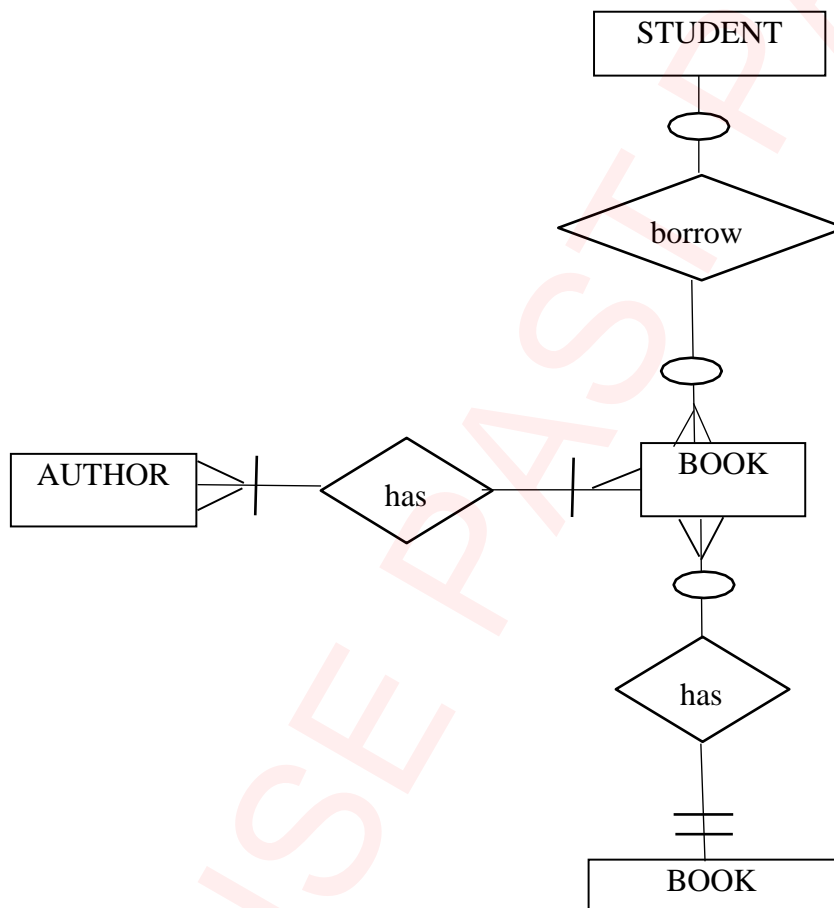
What is OSI layer model? Discuss any two (02) layers of OSI layer model. (1+4)

Q. 4 What are input pointing devices? Discuss any two (02) input pointing devices. (1+4)

OR

Explain the purpose and application of any two (02) types of short distance wireless communication. (2.5+2.5)

Q.5 Understand the Entity Relationship Diagram and answer the following questions: (1x5=5)



- Identify one example of one-to-many relationship.
- Indicate the degree of relationship between BOOK and AUTHOR.
- Identify the maximum cardinality between BOOK and BOOK CATEGORY.
- How many maximum STUDENTs borrow a BOOK?
- How many minimum BOOKs available in a BOOK CATEGORY?

OR

Normalise the following table data upto 2nd and 3rd normal form. Table is already in 1st normal form. (2+3)

SID	CID	S-NAME	COURSE	GRADE	TEACHER	T-CONTACT
1	IS318	AHMED	DATABASE	A	HARIS	9250415
1	IS301	AHMED	PROGRAMMING	B	MUDASSAR	9250416
2	IS318	JAWAD	DATABASE	A	HARIS	9250415
3	IS318	SAMAR	DATABASE	B	HARIS	9250415
4	IS301	BAJWA	PROGRAMMING	A	MUDASSAR	9250416
4	IS318	BAJWA	DATABASE	B	HARIS	9250415

Q.6 What is optical disk? Describe any two (02) types of optical disks?

(1+4)

Federal Board HSSC-I Examination
Computer Science Model Question
Paper 2023 (Curriculum 2009)

Alignment of Questions with Curriculum Student Learning Outcomes

Sr No	Section: Q. No. (Part no.)	Contents and Scope	Student Learning Outcomes *	Cognitive Level **	Allocated Marks in Model Paper
1	A: 1(i)	1.3 Computer Hardware	• Printers - Impact printer (Dot Matrix, Drum, Chain) - Non Impact Printer (DeskJet , Laser)	A	1
2	A:1(ii)	2.2 Main Memory	• Internal processor memory - Cache (L1, L2)	U	1
3	A: 1(iii)	2.3 Secondary Memory	Describe the following chip Memories with advantages and disadvantages: • Memory Cards	K	1
4	A: 1(iv)	3.1 Inside CPU	iii) Explain the system bus and its types: Address bus	U	1
5	A: 1(v)	4.1 Computer Casing/System Unit	iii) Explore the system unit • Mother Board - Expansion Slot (AGP, PCI, PCI Express)	U	1
6	A: 1(vi)	3.1 Inside CPU	ii) Describe the functions of the following types of registers: - Memory Address Register (MAR)	K	1
7	A: 1(vii)	5.3 TCP/IP	iv) Describe IP Addressing scheme (Classes, Subnets, Masks)	U	1
8	A: 1(viii)	5.1 Introduction	Explain the following: • Modes of Communication (simplex, half duplex, full duplex, Synchronous, Asynchronous)	A	1
9	A: 1(ix)	6.3 Long Distance Wireless Communication	Explain the following types of long distance wireless communications: • Cellular Communication	K	1
10	A: 1(x)	6.2 Short Distance Wireless Communications	Explain the following types of short distance wireless technologies: • Wi-Fi • Wi Max • Bluetooth • Infra-red	A	1
11	A: 1(xi)	7.1 Introduction	viii) Explain the following types of database languages for relational databases: • Data Definition Language (DDL) • Data Manipulation Language (DML) • Data Control Language (DCL)	U	1
12	A: 1(xii)	7.4 Data Modeling and EntityRelationship Diagram	i) Explain the following through pictorial examples: • Relationship	U	1
13	A: 1(xiii)	7.4 Data Modeling and EntityRelationship Diagram	ii) Explain the cardinalities and modalities with the help of pictorial examples	U	1

16	B: 2(i)	4.1 Computer Casing/System Unit	iii) Explore the system unit • Mother Board - Ribbon Cable (Data Cable, IDE, SATA 1, 2 , FD Cable)	K	3
17	B: 2(ii)	1.3 Computer Hardware	ii) Describe the Input devices • Scanners - Hand held scanner - Flat-bed scanner - Optical scanner	A	3
18	B: 2(iii)	4.2 Ports and Slots on the Motherboard	ii) Identify the following expansion cards: • Network card	K	3
19	B: 2(iv)	3.2 CPU Operations OR 1.3 Computer Hardware	v) Differentiate the following processors with reference to Clock speed, Bits, Bus width, Cache, Architecture: • Intel P4 • AMD Athlon OR iii) Describe the following output devices: • Printers - Impact printer (Dot Matrix, Drum, Chain) - Non Impact Printer (DeskJet , Laser)	U	3
20	B: 2(v)	3.2 CPU Operations OR 4.2 Ports and Slots on the Motherboard	iii) Describe instruction cycle.(fetch, decode, execute) OR iii) Memory chips: • SIMM • DIMM	U	3
21	B: 2(vi)	3.1 Inside CPU	iii) Explain the system bus and its types: • Data bus • Address bus • Control bus	U	3
22	B: 2(vii)	5.1 Introduction OR 5.1 Introduction	Explain the following: • Network Architecture (Client/Server, Peer to Peer) OR Explain the following: • Network Topologies (Star, Ring, Bus, Mesh)	U	3
23	B: 2(viii)	6.4 Mobile Device communication OR 2.2 Main Memory	ii) Identify features and limitations of mobile communication system OR ii) Differentiate between volatile and nonvolatile memory	U	3
24	B: 2(ix)	6.3 Long Distance Wireless Communication	Explain the following types of long distance wireless communications: • Global Positioning System (GPS) – Geostationary Earth Orbit (GEO) – Medium Earth Orbit (MEO) – Low Earth Orbit (LEO)	U	3

25	B: 2(x)	6.2 Short Distance Wireless Communications OR 7.4 Data Modeling and Entity Relationship Diagram	Explain the following types of short distance wireless technologies: • Wi Max • Bluetooth • Infra-red OR ii) Explain the cardinalities and modalities with the help of pictorial examples	A	3
26	B: 2(xi)	5.1 Introduction	• Modes of Communication (simplex, half duplex, full duplex, Synchronous, Asynchronous)	U	3
27	B: 2(xii)	8.3 Working with Forms OR 8.4 Working with queries and commands	ii) Know different Form views OR ii) Use following queries on database • SELECT(Where, Group by, Order by) • UPDATE • DELETE	K	3
28	B: 2(xiii)	7.1 Introduction	v) Identify the advantages of database management system over the file management system	U	3
29	B: 2(xiv)	7.2 Basic Database Terminologies	Define the following terms related to relational databases: • Key	A	3
32	C: 3	4.2 Ports and Slots on the Motherboard OR 5.2 Data Communication standards	i) Describe the following Ports: • Serial Ports • Parallel Ports • PS/2 Port • USB port • Fire Wire port OR ii) Define OSI model and explain concept of its layers	K	5
33	C: 4	1.3 Computer Hardware OR 6.1 Introduction	ii) Describe the Input devices • Pointing devices OR iv) Difference between short distance and long distance wireless communications	K	5
34	C: 5	7.4 Data Modeling and Entity Relationship Diagram OR 7.5 Relational Schema	i) Explain the following through pictorial examples: • Entity • Attribute • Relationship • Keys ii) Explain the cardinalities and modalities with the help of pictorial examples OR ii) Normalize relations up to third	U A	5

			normal form including integrity rules.		
35	C:6	2.3 Secondary Memory	iii) Describe the following types of optical disk with their working mechanism, advantages and disadvantages: • Optical disks (CD, DVD, Blue Ray)	K	5

*** Student Learning Outcomes**

National Curriculum for Computer Sciences Grades IX-XII, 2009 (Page no. 26-36)

****Cognitive Level**

K: Knowledge

U: Under-

standing A:

Application

ASSESSMENT GRID FOR COMPUTER SCIENCE HSSC-I MODEL PAPER 2023 Restructured

SLOs Based Specification of the Cognitive Domains As Per Curriculum 2009

Assessment Objectives		Unit 1: Overview of Computer System 10%	Unit 2: Computer Memory 10%	Unit 3: Central Processing Unit 10%	Unit 4: Inside System Unit 15%	Unit 5: Network communic ation and Protocols 10%	Unit 6: Wireless Communicat ions 10%	Unit 7: Database Fundament als 15%	Unit 8*: Database Developmen t (Major part cover in Practical) 20%	Marks	Total marks (75 Theory + 25 Practical)	% Covered 100%
Knowledge based	Section - A		1-iii-(01)		1-vii-(01)	1-ix-(01)				3	37	33.3
	Section - B				2-i-(03)			2-xii-(03) 2-xii-(03)		9		
	Section - C	4-(05)	6-(05)		3-(05)	3-(05)	4-(05)			25		
Understanding based	Section - A	1-ii-(01)	1-iv-(01)	1-v-(01)	1-vi-(01)			1-xii-(01) 1-xiii-(01)	1-xi-(01)	7	54	48.6
	Section - B	2-iv-(03)	2-viii-(03)	2-iv-(03) 2-vi-(03) 2-v-(03)	2-iii-(03) 2-v-(03)	2-vii-(03) 2-vii-(03) 2-xi-(03)	2-viii-(03) 2-ix-(03)	2-xi-(03) 2-xiii-(03)		42		
	Section - C							5-(05)		5		
Application based	Section - A	1-i-(01)		1-viii-(01)		1-x-(01)				3	20	18
	Section - B	2-ii-(03)					2-x-(03)	2-x-(03)	2-xiv-(03)	12		
	Section - C							5-(05)		5		
Total marks		13	10	11	16	16	14	16	15	111		100
Percentage		11.7	9	9.9	14.4	14.4	12.6	14.4	13.5	100		

* Unit 8: Major content will examine in Practical paper. 12% covered in Theory paper and remaining will cover in Practical paper.
Hence wightage distributed to other units.

KEY: 1-i-(01)

Question No - Part No - (Allocated Marks)