

Version No.			

ROLL NUMBER						



0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

0	0	0	0	0	0	0
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 15)

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. Each part carries one mark.

- Which one of the following is the most powerful digital computer system?

A. Mainframe Computer	<input type="radio"/>	B. Minicomputer	<input type="radio"/>
C. Microcomputer	<input type="radio"/>	D. Supercomputer	<input type="radio"/>
- Which one of the following is the most suitable to print salary slips of 2000 employees on a very cheap cost?

A. Dot matrix printer	<input type="radio"/>	B. Laser printer	<input type="radio"/>
B. Desk jet printer	<input type="radio"/>	D. Plotter	<input type="radio"/>
- Cache Memory works between:

A. RAM and Processor	<input type="radio"/>	B. RAM and ROM	<input type="radio"/>
C. Processor and Hard Disk	<input type="radio"/>	D. ROM and Hard Disk	<input type="radio"/>
- In which of the following categories a memory card lies?

A. Magnetic Memory	<input type="radio"/>	B. Secondary Memory	<input type="radio"/>
C. Optical Memory	<input type="radio"/>	D. Flash Memory	<input type="radio"/>
- How many memory locations can be addressed with 64-bit address bus?

A. 32	<input type="radio"/>	B. 64	<input type="radio"/>
C. 2^{32}	<input type="radio"/>	D. 2^{64}	<input type="radio"/>
- How many different operations can be performed by CPU, if opcode of an instruction format consists of 4 bits?

A. 4	<input type="radio"/>	B. 8	<input type="radio"/>
C. 16	<input type="radio"/>	D. 32	<input type="radio"/>
- Which one of the following expansion slots has highest video performance?

A. PCI	<input type="radio"/>	B. PCI Express	<input type="radio"/>
C. SATA	<input type="radio"/>	D. AGP	<input type="radio"/>

8. 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
9. The IP Address 191.10.1.0 lies in:
- A. Class A B. Class B
C. Class C D. Class D
10. Email sending mechanism is an example of the following mode of _____ communication.
- A. Simplex B. Simple Duplex
C. Half Duplex D. Full Duplex
11. Cellular communication dividing the physical region into sections is called:
- A. Pods B. Cells
C. Cubes D. Sectors
12. Which one of the following wireless technologies is used in TV remotes and Toys?
- A. Infrared B. Bluetooth
C. Wi-Fi D. Wi-Max
13. What is the type of this statement? **“Create table Student”**.
- A. DCL B. DDL
C. DXL D. DML
14. The relationship between entities AUTHOR and BOOK is:
- A. Unary B. Binary
C. Ternary D. Recursive
15. 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

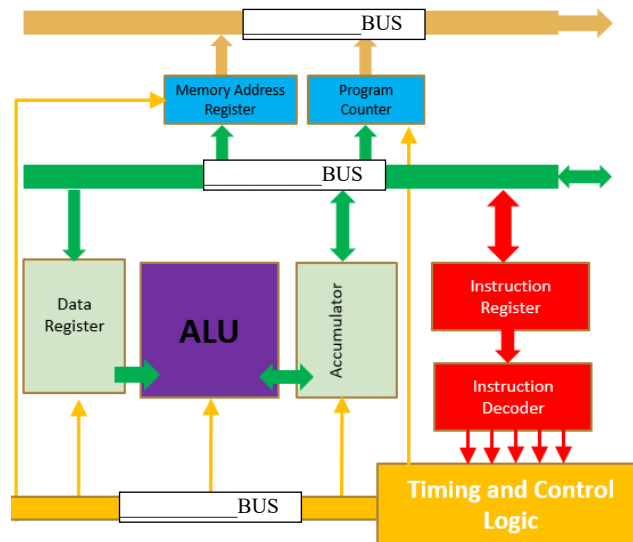
Total Marks: 60

Note: Answer any twelve parts from Section 'B' and attempt any three questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 36)

Q.2 Attempt any **TWELVE** parts from the following. All parts carry equal marks. (12×3=36)

- i. Differentiate between hard copy and soft copy devices along with one example of each. (1+2)
- ii. Write down any one application of the following scanner types: (1+1+1)
a. Handheld scanner b. Flatbed scanner c. Optical scanner
- iii. Define utility software, language processor and device driver. (2+1)
- iv. Differentiate between Intel P4 and AMD Athlon processors with reference to clock speed, bus width and architecture. (3)
- v. What is an Instruction Cycle? Illustrate with diagram. (2+1)
- vi. Write down three differences between SIMM and DIMM memory chips. (3)
- vii. The following Microprocessor diagram has three internal system buses, observe the diagram carefully and name the Buses shown in the diagram. (3)



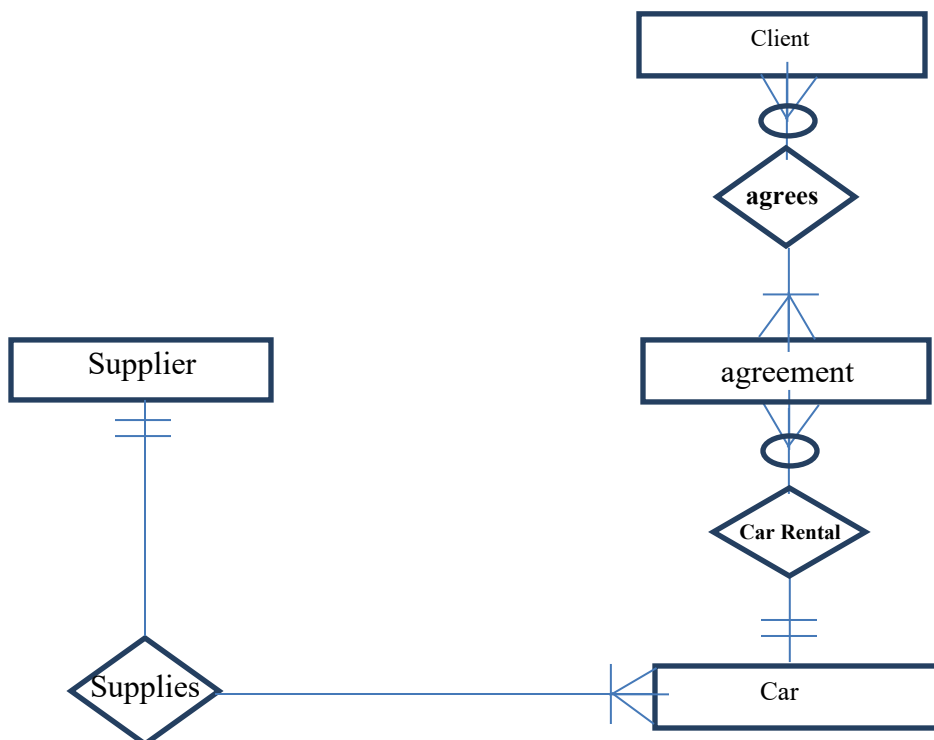
- viii. Differentiate between Client-Server and Peer-to-Peer network architecture. (3)
- ix. Categorize the following topologies as per their characteristics (Star, Ring, Bus, Mesh). (1.5+1.5)

Expensive	Least Cabling

- x. Give any three limitations of Mobile Communication System. (3)
- xi. Complete the required information in the following table against the said satellites. (1+1+1)

Satellites	Distance from the Earth	Purpose
GEO		
MEO		
LEO		

- xii. Write down any one usage of Wi Max, Bluetooth and Infra-Red technologies. (1+1+1)
- xiii. 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)
- xv. Understand the ER Diagram and write the answers of the following questions:



- List one example of one-to-many relationship.
 - Mention Entities used in ER diagram.
 - How many minimum cars supplier must supplies?
- xv. What are Columnar, Tabular and Datasheet Form views? (3)
- xvi. 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 24)

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

- Q.3 a. Differentiate between Sequential access and Direct access storage. (4)
b. Which one of the following storage media is better and why? Support your answer with three reasons. (1+3)
(i) Magnetic (ii) Optical

- Q.4 Describe the following types of Ports: (2 × 4 =8)
a. Serial Port b. Parallel Port
c. USB Port d. Fire wire Port

- Q.5 i) Compare the TCP sites with OSI model. (4)
ii) Differentiate between circuit switching and Packet switching. (4)

- Q.6 Observe the table **STUDENT**, apply normalization rules, and convert the table up to 3NF by showing step by step procedure of 1NF, 2NF and 3NF. (2+3+3)

STUDENT

St ID	Name	Class	Sectio	Gender	Group	Practical
1	MUHAMMAD TALHA	XI	G	MALE	ICS-PHY	Physics, Computer
2	HAMZA AZIZ	XI	G	MALE	ICS-PHY	Physics, Computer
3	MUHAMMAD SUFYAN	XI	G	MALE	ICS-PHY	Physics, Computer
4	KOMAL SAMUAIL	XI	F	FEMALE	ICS-STATS	Stats, Computer
5	ISHA SHAUKAT	XI	F	FEMALE	ICS-PHY	Physics, Computer

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COMPUTER SCIENCE HSSC-I
Students Learning Outcomes
 (Curriculum 2009)

Sr No	Section: Q. No. (Part no.)	Contents and Scope	Student Learning Outcomes *	Cognitive Level **	Allocated Marks in Model Paper
1	A: 1(i)	1.1 Introduction to Computer	iii) Define and classify. (Microcomputer, Mainframe, Super, Mobile Computing)	K	1
2	A:1(ii)	1.3 Computer Hardware	iii) Describe the following output devices: •Printers - Impact printer (Dot Matrix, Drum, Chain) - Non Impact Printer (Desk Jet , Laser)	A	1
3	A: 1(iii)	2.2 Main Memory	iii) Explain the following fundamental types of computer memory: • Internal processor memory - Cache (L1, L2)	K	1
4	A: 1(iv)	2.3 Secondary Memory	iv) Describe the following chip Memories with advantages and disadvantages: • Flash Memory • Memory Cards	U	1
5	A: 1(v)	3.1 Inside CPU	iii) Explain the system bus and its types: •Address bus	U	1
6	A: 1(vi)	3.2 CPU Operations	ii) Explain instruction format	U	1
7	A: 1(vii)	4.1 Computer Casing/System Unit	iii) Explore the system unit - Expansion Slot (AGP, PCI, PCI Express)	K	1
8	A: 1(viii)	3.1 Inside CPU	ii) Describe the functions of the following types of registers: • Special purpose registers: - Program Counter (PC)	K	1
9	A: 1(ix)	5.3 TCP/IP	iv) Describe IP Addressing scheme (Classes, Subnets, Masks)	K	1
10	A: 1(x)	5.1 Introduction	Explain the following: • Modes of Communication (simplex, half duplex, full duplex, Synchronous, Asynchronous)	U	1
11	A: 1(xi)	6.3 Long Distance Wireless Communication	Explain the following types of long-distance wireless communications: •Cellular Communication	K	1
12	A: 1(xii)	6.2 Short Distance Wireless Communications	Explain the following types of short distance wireless technologies: • Wi-Fi •Wi Max • Bluetooth • Infra-red	U	1
13	A: 1(xiii)	7.1 Introduction	viii) Explain the following types of database languages for relational databases: • Data Definition Language (DDL)	U	1

14	A: 1(xiv)	7.4 Data Modeling and Entity Relationship Diagram	i) Explain the following through pictorial examples: <ul style="list-style-type: none"> • Relationship • Entity • Attribute • Keys 	U	1
15	A: 1(xv)	7.4 Data Modeling and Entity Relationship Diagram	ii) Explain the cardinalities and modalities with the help of pictorial examples	U	1
16	B: 2(i)	1.3 Computer Hardware	iv) Differentiate between soft copy and hard copy	U	1+2
17	B: 2(ii)	1.3 Computer Hardware	ii) Describe the Input devices <ul style="list-style-type: none"> • Scanners - Hand held scanner - Flat-bed scanner - Optical scanner 	U	1+1+1
18	B: 2(iii)	1.2 Computer Software	ii) Describe the types of system software: <ul style="list-style-type: none"> • Operating System • Device Driver • Utility Software • Language Processor 	K	2+1
19	B: 2(iv)	3.2 CPU Operations	v) Differentiate the following processors with reference to Clock speed, Bits, Bus width, Cache, Architecture: <ul style="list-style-type: none"> • Intel P4 • AMD Athlon 	U	3
20	B: 2(v)	3.2 CPU Operations	iii) Describe instruction cycle (fetch, decode, execute)	K+U	2+1
21	B: 2(vi)	4.2 Ports and Slots on the Motherboard	iii) Memory chips: <ul style="list-style-type: none"> • SIMM • DIMM 	U	3
22	B: 2(vii)	3.1 Inside CPU	iii) Explain the system bus and its types: <ul style="list-style-type: none"> • Data bus • Address bus • Control bus 	U	3
23	B: 2(viii)	5.1 Introduction	Explain the following: <ul style="list-style-type: none"> • Network Architecture (Client/Server, Peer to Peer) 	U	3
24	B: 2(ix)	5.1 Introduction	Explain the following: <ul style="list-style-type: none"> • Network Topologies (Star, Ring, Bus, Mesh) 	A	1.5+1.5
25	B: 2(x)	6.4 Mobile Device communication	ii) Identify features and limitations of mobile communication system	K	3
26	B: 2(xi)	6.3 Long Distance Wireless Communication	Explain the following types of long-distance wireless communications <ul style="list-style-type: none"> • Global Positioning System (GPS) <ul style="list-style-type: none"> ➤ Geostationary Earth Orbit (GEO) ➤ Medium Earth Orbit (MEO) ➤ Low Earth Orbit (LEO) 	K	1+1+1
27	B: 2(xii)	6.2 Short Distance Wireless Communications	Explain the following types of short distance wireless technologies: <ul style="list-style-type: none"> • Wi Max • Bluetooth • Infra-red 	U	1+1+1

28	B: 2(xiii)	7.4 Data Modeling and Entity-Relationship Diagram	ii) Explain the cardinalities and modalities with the help of pictorial examples	A	2+1
29	B: 2(xiv)	7.4 Data Modeling and Entity-Relationship Diagram	ii) Explain the cardinalities and modalities with the help of pictorial examples	U	3
30	B: 2(xv)	8.3 Working with Forms	ii) Know different Form views	K	3
31	B: 2(xvi)	7.4 Data Modeling and Entity-Relationship Diagram 8.2 Working with Tables	i) Explain the following through pictorial examples: • Attribute ii) Identify various available data types iii) Create a primary key in the tables v) Use navigation buttons to navigate through records in a table	A	0.5 1.5 0.5 0.5
32	C: 3	2.3 Secondary Memory	ii) Explain the difference between sequential access and direct access iii) Describe the following types of magnetic memory, and optical disk with their working mechanism, advantages, and disadvantages:	U	4 1+3
33	C: 4	4.2 Ports and Slots on the Motherboard	i) Describe the following Ports: • Serial Ports • Parallel Ports • USB port • Fire Wire port	K	2+2+2+2
34	C: 5	5.3 TCP/IP 5.3 TCP/IP	ii) Compare the TCP sites with OSI model ii) Differentiate between circuit switching and Packet switching	U	4 4
35	C: 6	7.5 Relational Schema	ii) Normalize relations up to third normal form including integrity rules	A	2+3+3

*** Student Learning Outcomes**

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

****Cognitive Level**

K: Knowledge

U: Understanding

A: Application

COMPUTER SCIENCE HSSC-I

Table of specifications

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 communicati on and Protocols 10%	Unit 6: Wireless Communication s 10%	Unit 7: Database Fundamentals 15%	Unit 8 *: Database Development (Major part cover in Practical) 20%	Marks	Total marks (75 Theory + 25 Practical)	% Covered 100%
Knowledge based	Section - A	1-1-(01)	1-3-(01)	1-8-(01)	1-7-(01)	1-9-(01)	1-11-(01)			6	28	29.5%
	Section - B	2-iii-(03)		2-v-(02)			2-x-(03) 2-xi-(03)		2-xv-(03)	14		
	Section - C				4-(08)					8		
Understanding based	Section - A		1-4-(01)	1-5-(01) 1-6-(01)		1-10-(01)	1-12-(01)	1-13-(01) 1-14-(01) 1-15-(01)		8	49	51.6%
	Section - B	2-i-(03) 2-ii-(03)		2-iv-(03) 2-v-(01) 2-vii-(03)	2-vi-(03)	2-viii-(03)	2-xii-(03)	2-xiv-(03)		25		
	Section - C		3-(08)			5-(08)				16		
Application based	Section - A	1-2-(01)								1	18	18.9%
	Section - B					2-ix-(03)		2-xiii-(03) 2-xvi-(0.5)	2-xvi-(2.5)	9		
	Section - C							6-(08)		8		
Total marks		11	10	12	12	16	11	17.5	5.5	95		100

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

KEY: 1-1-(01)
Question No - Part No - (Allocated Marks)