Version No.			

ROLL NUMBER						

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.

1. Which one of the following is the most powerful digital computer system?
   A. Mainframe Computer ○ B. Minicomputer ○
   C. Microcomputer ○ D. Supercomputer ○

2. 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 ○ B. Laser printer ○
   B. Desk jet printer ○ D. Plotter ○

3. Cache Memory works between:
   A. RAM and Processor ○ B. RAM and ROM ○
   C. Processor and Hard Disk ○ D. ROM and Hard Disk ○

4. In which of the following categories a memory card lies?
   A. Magnetic Memory ○ B. Secondary Memory ○
   C. Optical Memory ○ D. Flash Memory ○

5. How many memory locations can be addressed with 64-bit address bus?
   A. 32 ○ B. 64 ○
   C. 2^{32} ○ D. 2^{64} ○

6. How many different operations can be performed by CPU, if opcode of an instruction format consists of 4 bits?
   A. 4 ○ B. 8 ○
   C. 16 ○ D. 32 ○

7. Which one of the following expansion slots has highest video performance?
   A. PCI ○ B. PCI Express ○
   C. SATA ○ D. AGP ○

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

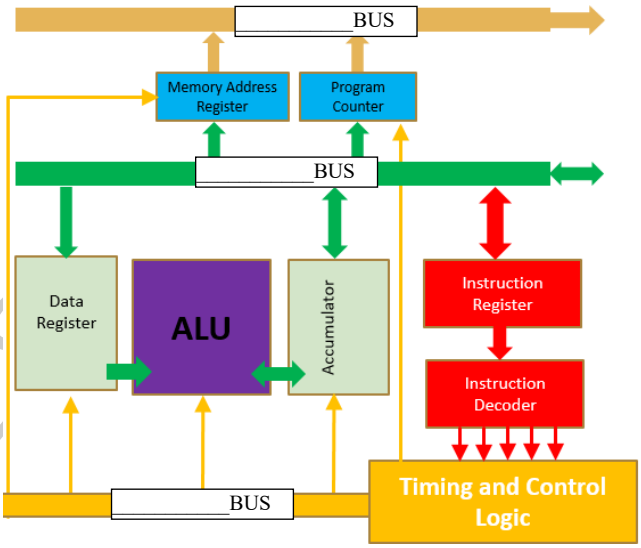
iii. Define utility software, language processor and device driver. (2+1)

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)

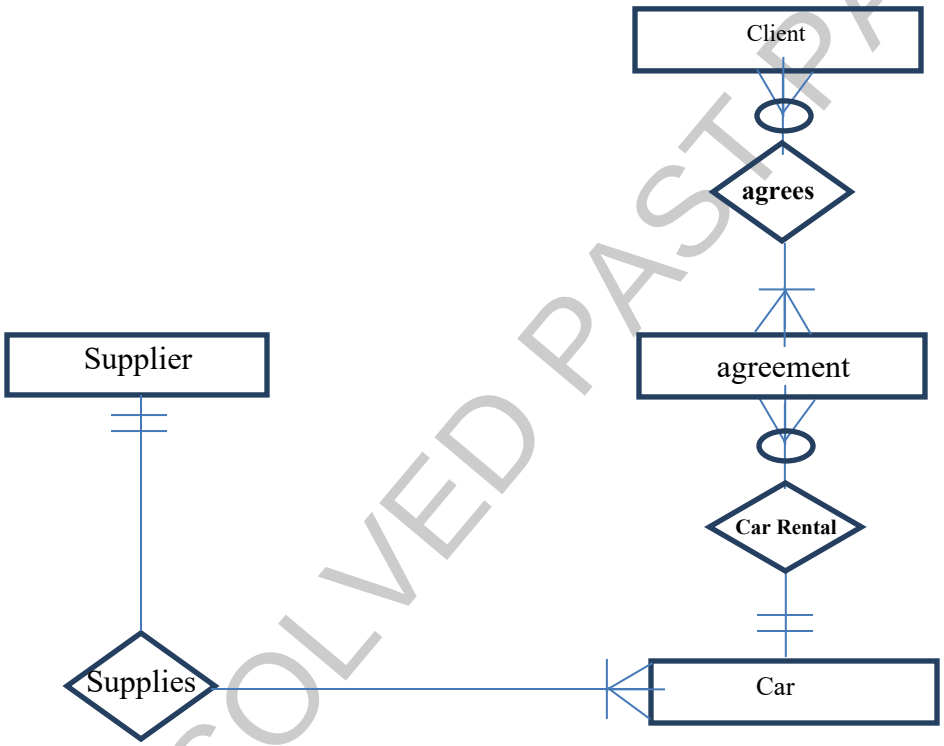
xi. Complete the required information in the following table against the said satellites. (1+1+1)

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:



i. List one example of one-to-many relationship.
ii. Mention Entities used in ER diagram.
iii. 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

* * * * *

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: • 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 • 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: • 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: • 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: • SIMM • DIMM	U	3
22	B: 2(vii)	3.1 Inside CPU	iii) Explain the system bus and its types: • Data bus • Address bus • Control bus	U	3
23	B: 2(viii)	5.1 Introduction	Explain the following: • Network Architecture (Client/Server, Peer to Peer)	U	3
24	B: 2(ix)	5.1 Introduction	Explain the following: • 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 • Global Positioning System (GPS) ➢ 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: • 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 communication and Protocols **10%**	Unit 6: Wireless Communications **10%**	Unit 7: Database Fundamentals **15%**	Unit 8 *: Database Development (Major part cover in Practical) **20%**	Mark s	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)