

| Version No. | | | |
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| ROLL NUMBER | | | | | | |
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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.

1. 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) Desk jet printer
- c) Laser printer
- d) Plotter

2. Cache Memory works between:

- a) RAM and Processor
- b) RAM and ROM
- c) Processor and Hard Disk
- d) ROM and Hard Disk

3. In which of the following categories a memory card lies?

- a) Magnetic Memory
- b) Secondary Memory
- c) Optical Memory
- d) 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)

- i. Write down purpose of any three (03) ribbon cables. (3)
- ii. Write down any one application of the following scanner types: (1+1+1)
a. Handheld scanner b. Flatbed scanner c. Optical scanner
- iii. Give one (01) advantage and two(02) disadvantages of wireless network card. (1+1+1)
- iv. Differentiate between Intel P4 and AMD Athlon processors with reference to clock speed, bus width and architecture. (3)

OR

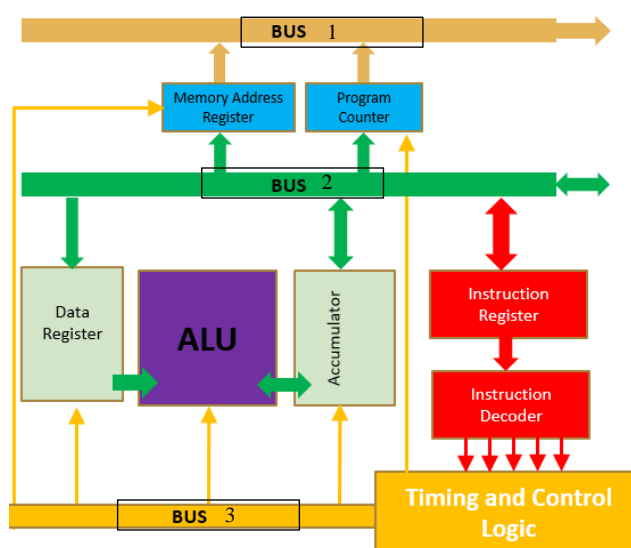
Give three differences between impact and non-impact printers. (3)

- v. What is an Instruction Cycle? Illustrate with diagram. (2+1)

OR

Write down three differences between SIMM and DIMM memory chips. (1+1+1)

- vi. 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

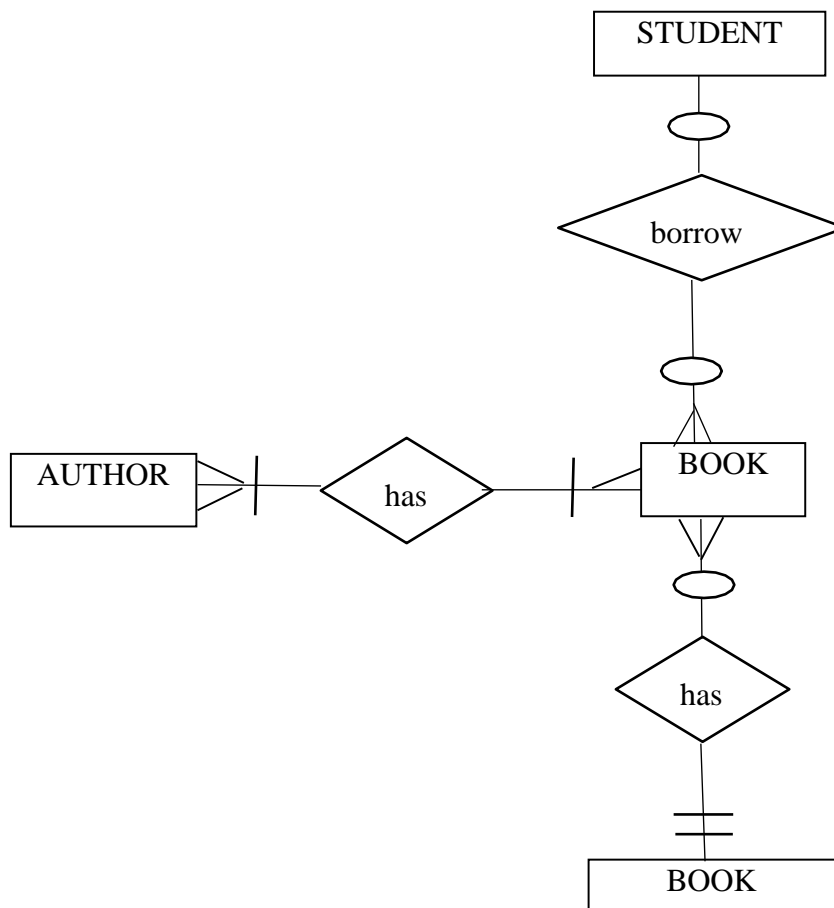
What is OSI layer model? Discuss any two (02) layers of OSI layer model. (1+4)

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 EntityRelationship 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 EntityRelationship 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)