Answer Sheet No._____

Sign. of Candidate _____

Sign. of Invigilator _____

COMPUTER SCIENCE HSSC–I (2nd Set)
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 pointing device is popular with ATM machines?
A. Touch Pad   B. Trackball
C. Touch Screen   D. Light Pen

(2) Which device reads the information of owner from Credit Card?
A. Bar Code Reader   B. Magnetic Card Reader
C. Optical Scanner   D. Handheld Scanner

(3) What is the full form of WAP?
A. Wireless Access Place   B. Wireless Access Protocol
C. Wireless Access Point   D. Wireless Access Portion

(4) Which one of the following Orbits is at the distance of 22,000 miles from the surface of the Earth?
A. GEO   B. MEO
C. LEO   D. HEO

(5) Which one of the following is an example of One-to-Many relationship?
A. Class → Teacher
B. College Campus → Teacher
C. College→ Principal
D. Country→ Capital

(6) Which device use spindle to hold the disk(s)?
A. Compact Disk   B. Floppy Disk
C. Hard Disk   D. DRAM

(7) Which device have instructions to load operating system from hard disk to RAM?
A. RAM   B. Cache
C. ROM   D. Register

(8)   Which theoretical foundation of a data base determines that how data is stored, organized, and manipulated?
A.   Database Model   ○   B.   Database Structure   ○
C.   Database Design   ○   D.   Database Architecture   ○

(9)   Which component generates a signal to execute an instruction?
A.   ALU   ○   B.   Decoder   ○
C.   Cache   ○   D.   Timing & Control Logic ○

(10)   Which one of the following is uni-directional bus?
A.   Data   ○   B.   Network   ○
C.   Address   ○   D.   System   ○

(11)   Which one of the following is Data Transfer Instruction?
A.   STORE   ○   B.   LOOP   ○
C.   SHIFT   ○   D.   JMP   ○

(12)   For which purpose Class C is used?
A.   Small size network ○   B.   Multicasting   ○
C.   Large size network ○   D.   Broadcasting   ○

(13)   Which one of the following Network devices is used to forward data packets across similar or different networks?
A.   Server   ○   B.   Router   ○
C.   Modem   ○   D.   Gateway   ○

(14)   Which datatype is most suitable for storing address of Employee?
A.   Short Text   ○   B.   Long Text   ○
C.   Yes/No   ○   D.   Date/Time   ○

(15)   Which one of the following port is not replaced by USB port?
A.   Serial   ○   B.   Firewire   ○
C.   Parallel   ○   D.   PS/2   ○

_____

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.   Why **LCD** is better than **CRT** monitors? Justify your answer with three reasons.

ii.   Write down one example of each Productivity Software, Open-Source Software and Device Driver.

iii.   Which pointing device is available in laptop? How it differs from a mouse? Give two reasons.

iv.   What are the two basic components of CPU? Illustrate with diagram.

v.   What is Memory Word? How size of Memory word affects the speed of computer?

vi.   Write down the purpose of **EPROM** and **EEPROM**.

vii.   Which port is **plug and play**? Why is it called plug and play**?** Give two reasons.

viii.   Write down the functions of **Memory Address Register** and **Program Counter**? How are they linked?

ix.   Complete the following grid according to the criteria given.

Criteria	OSI	TCP/IP
Developed by		
No of Layers		
Model Type		

x.   Write down any three differences between **CISC** and **RISC**.

xi.   Write down three applications of **Virtual Private Network?**

xii.   What are three components required for **Mobile Communication Network**.

xiii.   What is **Wireless Network**? Give one advantage and one disadvantage.

xiv.   In an organization, an employee assigned a single login and he work under only one department. Draw ER diagram of given scenario.

xv.   Determine the type of database language by the commands given of each type:
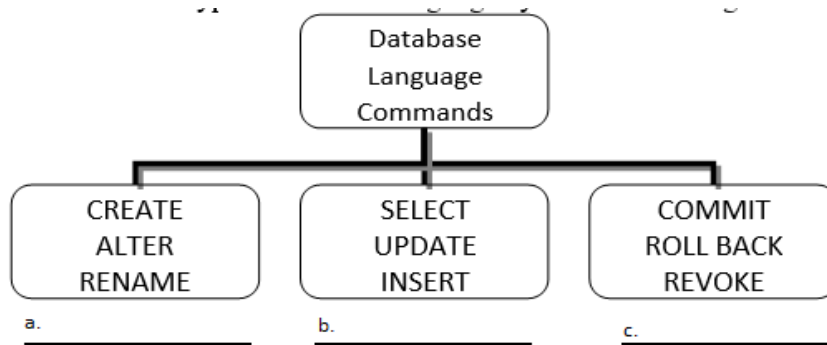
xvi. Select the suitable datatypes for respective fields.

Book Id	Book Title	Publish Date	Available	Price	Remarks
3625	Network Fundamentals	26-Feb-2018	Yes	800$	Book covers the topics….
3626	Oracle SQL	16-June-2005	No	900$	Book covers the topics….
3627	Introduction to Computer	12-Dec-2011	Yes	745$	Book covers the topics….

SECTION – C (Marks 24)

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

Q.3 a. What is an Instruction? Briefly explain three types of instructions with example. (4)

b. Read the given description carefully and complete the following grid: (4)

1	2	3
Description	**Name of Storage Device**	**Category of Storage: Primary/Secondary**
Volatile memory that is used as cache memory and does not need to be recharged		
Volatile memory that uses laser beam to read/write data and have smaller and very densely packed bumps due to which it has largest storage capacity		
Non-volatile memory that uses electric current to rewrite data and work like flash memory		
Non-volatile memory in which data is accessed sequentially and mostly used for backing purpose		

Q.4 Describe the following classification of computers with their applications in daily life:
i. Supercomputer ii. Mainframe Computer (2+2+2+2)
iii. Microcomputer iv. Mobile Computing

Q.5 Discuss the **Ring** and **Mesh** topologies, with respect to advantages and disadvantages. Illustrate with the help of diagram. (4+4)

Q.6 a. What is Primary Key, Foreign Key, Alternate and Candidate Key? (4)

b. Also identifies them in the following ER-diagram. Mention the cardinality and modality of given entities in the diagram. (2+2)

* * * * *
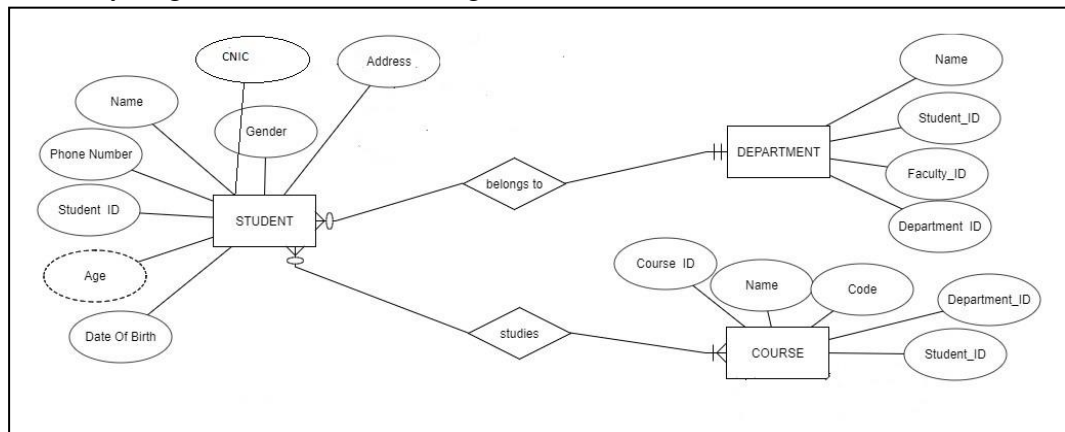
COMPUTER SCIENCE HSSC-I (2ⁿᵈ Set)
Student Learning Outcomes Alignment Chart
(Curriculum 2009)

Sr No	Section: Q. No. (Part no.)	Contents and Scope	Student Learning Outcomes	Cognitive Level **	Allocated Marks in Model Paper
1	A: 1(i)	1.3 Computer Hardware	ii) Describe the Input devices • Pointing devices	A	1
2	A:1(ii)	1.3 Computer Hardware	Magnetic card/Devices based system.	U	1
3	A: 1(iii)	6.4 Mobile Device communication	iii) Explain the architecture for communications over mobile devices • Web Protocol stack (HTTP/TCP/IP) • WML • WAP	K	1
4	A: 1(iv)	6.3 Long Distance Wireless Communication	Explain the following types of long-distance wireless communications: • Geostationary Earth Orbit (GEO) • Medium Earth Orbit (MEO) • Low Earth Orbit (LEO)	U	1
5	A: 1(v)	7.4 Data Modeling and Entity-Relationship	iii) Draw Entity-Relationship (ER) diagrams for the systems like:	A	1
6	A: 1(vi)	2.3 Secondary Memory	iii) Describe the following types of magnetic memory, and optical disk with their working mechanism, advantages and disadvantages: • Magnetic tapes • Magnetic disks • Optical disks (CD, DVD, Blue Ray)	U	1
7	A: 1(vii)	2.2 Main Memory	iii) Explain the following fundamental types of computers memory: • ROM	U	1
8	A: 1(viii)	7.1 Introduction	vii) Describe the following types of database models:	K	1
9	A: 1(ix)	3.1 Inside CPU	i) Describe the basic components of CPU:	U	1
10	A: 1(x)	3.1 Inside CPU	iii) Explain the system bus and its types: • Data bus • Address bus • Control bus	U	1

11	A: 1(xi)	3.2 CPU Operations	i) Define instruction and its types	U	1
12	A: 1(xii)	5.3 TCP/IP	iv) Describe IP Addressing scheme (Classes, Subnets, Masks)	A	1
13	A: 1(xiii)	5.1 Introduction	Explain the following: • Communication Devices (Switch, Router, Gateway)	U	1
14	A: 1(xiv)	8.2 Working with	ii) Identify various available data types	U	1
15	A: 1(xv)	4.2 Ports and Slots on the Motherboard	i) Describe the following Ports:	U	1
16	B: 2(i)	2.1 Introduction	Define the following: - Memory WORD	U	3
17	B: 2(ii)	1.2 Computer Software	iv) Elaborate the following terms • Device Driver • Open-source software • Productivity Software	U	3
18	B: 2(iii)	1.3 Computer Hardware	ii) Describe the Input devices • Pointing devices	U	3
19	B: 2(iv)	3.1 Inside CPU	i) Describe the basic components of CPU : • Arithmetic and Logic Unit(ALU) • Control Unit (CU)	A	3
20	B: 2(v)	2.3 Secondary Memory	iii) Describe the following types of magnetic memory, and optical disk with their working mechanism, advantages and disadvantages: • Magnetic tapes • Magnetic disks Ooptical disks (CD, DVD, Blue Ray)	K+U	3
21	B: 2(vi)	2.2 Main Memory	iii) Explain the following fundamental types of computer memory: • ROM - PROM - EPROM - EEPROM	U	3
22	B: 2(vii)	4.2 Ports and Slots on the Motherboard	i) Describe the following Ports: • Serial Ports • Parallel Ports • PS/2 Port • USB port Fire Wire port	K+U	2+1
23	B: 2(viii)	3.1 Inside CPU	ii) Describe the functions of the following types of registers: • General purpose registers: - Accumulator (AC)	U	3

			- Base register - Counter register - Data Register (DR) • Special purpose registers: - Instruction Register (IR) - Memory Address Register (MAR) - Memory Buffer Register (MBR) - Program Counter (PC)		
24	B: 2(ix)	5.3 TCP/IP	ii) Compare the TCP sites with OSI model	U	3
25	B: 2(x)	5.1 Introduction	Explain the following: • Communication Media (Guided, Un-Guided)	U	3
26	B: 2(xi)	5.1 Introduction	Explain the following: Network Types (LAN, MAN, WAN, VPN)	U	3
27	B: 2(xii)	6.4 Mobile Device communication	i) Explain the requirements of mobile communication	K	3
28	B: 2(xiii)	6.1 Introduction	i) Explain a wireless network ii) Explain the advantages and disadvantages of wireless networks	K	1+2
29	B: 2(xiv)	7.4 Data Modeling and Entity-Relationship Diagram	iii) Draw Entity-Relationship (ER) diagrams for the systems	A	3
30	B: 2(xv)	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	3
31	B: 2(xvi)	8.2 Working with Tables	ii) Identify various available data types	U	3
32	C: 3(a)	3.2 CPU Operations	i) Define instruction and its types	K	4
33	C: 3(b)	2.2 Main Memory 2.3 Secondary Memory	iii) Explain the following fundamental types of computers memory: • RAM - Static RAM • ROM - EEPROM iii) Describe the following types of magnetic memory, and optical disk with their working mechanism, advantages and disadvantages:	U	4

			• Magnetic tapes • Magnetic disks • Optical disks (CD, DVD, Blue Ray)		
34	C: 4	1.1 Introduction to Computer	iii) Define and classify. (Microcomputer, Mainframe, Super, Mobile Computing)	K+A	4+4
35	C: 5	5.1 Introduction	Explain the following: Network Topologies (Star, Ring, Bus, Mesh)	K+U	6+2
36	C: 6	7.4 Data Modeling and Entity-Relationship Diagram	i) Explain the following through pictorial examples: • Keys	K+U	4+4

**Cognitive Level
K: Knowledge U: Understanding A: Application

COMPUTER SCIENCE HSSC-I (2nd Set)

Table of Specification

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 20%	Cognitive Level Marks	Cognitive Level Total Marks: 95	Cognitive Level %
Knowledge	Section A						1(iii)(1)	1(viii)(1)		2		
Knowledge	Section B		2(v)(1)		2(vii)(1)		2(xii, xiii)6			8	28	29.5%
Knowledge	Section C	4(4)		3(a)(4)		5(6)		6(4)		18		
Understanding	Section A	1(ii)(1)	1(vi, vii)2	1(ix, x, xi)3	1(xv)1	1(xiii)1	1(iv)1		1(xiv)1	10		
Understanding	Section B	2(ii)3, 2(iii)3	2(i)(3) 2(v)(2), 2(vi)(3)	2(viii)3	2(vii)(2)	2(ix, x, xi)9			2(xvi)3	34	49	51.6%
Understanding	Section C		3(b)(4)					6b(4)		8		
Application	Section A	1(i)1				1(xii)1		1(v)1		3		
Application	Section B			2(iv)3				2(xiv)3 2(xv)3		6	18	18.9%
Application	Section C	4(4)				5(2)				6		
Total Marks		16	15	13	4	19	8	16	4	95		100

KEY:

1(1)(01)

Question No (Part No.) (Allocated Marks)

Note: (i) The policy of FBISE for knowledge based questions, understanding based questions and application based questions is approximately 30% knowledge based, 50% understanding based, 20% application based.

(ii) The total marks specified for each unit/content in the table of specification is only related to this model question paper.

(iii) The level of difficulty of the paper is approximately 40% easy, 40% moderate, 20% difficult