

# **POLICY GUIDELINES FOR COMPUTER SCIENCE PAPER**

## Paper Pattern and Distribution of Marks

### Computer Science HSSC-I

The question paper is organized into following three sections, namely: "Section A, B & C": Questions posed may be text based or derived/unseen but in similar pretext and difficulty level as per the lessons taught in the course. Distribution of the questions with respect to cognitive domain within each section shall roughly be around 30 percent Knowledge (K), 50 percent Understanding (U) and 20 percent Application (A).

The Questions in these subjects are designed in such a manner that no pet-definitions are asked or required from the candidates to be reproduced. Moreover the questions are appropriately designed whilst keeping in consideration the time for thought-process (particularly in U and A Cognitive Domain questions) and the length of the subsequent text to be produced by the candidates.

#### **SECTION — A**

This section consists of question number one with 15 compulsory structured part questions - Multiple Choice Questions (MCQs) of one mark each. These MCQs should preferably be designed in such a way that they cover the whole course taught. These MCQs should objectively test the understanding of the concepts of the candidates in these subjects.

#### **SECTION — B & C**

These sections consist of question number 2 & 3 with preferably 9 part questions each – Short Response Questions (SRQs) of three (03) marks each. The candidates are required to attempt (respond to) any six SRQs for a maximum total of 18 marks in each section.

#### **SECTION — D**

This section consists of four (04) Extended Response Question (ERQs). Candidates are required to attempt (respond to) any three of these ERQs as per their choice and convenience. These questions may comprise of two part questions each if deemed necessary by paper setter in order to balance out the distribution various concepts and knowledge areas from different Cognitive Domains taught in course. None of these part questions shall be of less than 04 marks.

## **Annexure for Policy Guidelines for Question Paper**

### Definitions and Disclaimer

Policy guidelines for paper setting vide Notification No.6-8/FBISE/RES/CC/918 dated 27 August 2019 have been conveyed for general information. Definitions of some terminologies and disclaimers are given in this annexure.

#### **1. Definitions**

##### **I. Cognitive Domains**

Cognitive domain refers to development of mental skill and acquisition of knowledge.

In the questions papers developed by Federal Board of Intermediate & Secondary Education, Islamabad from hereon will be intended to test the following cognitive domains of the candidates:

- Knowledge: Approximately 30% Question in each section
- Understanding: Approximately 50% Question in each section
- Application: Approximately 20% Question in each section

##### **i. Knowledge (K)**

Knowledge refers to the ability of the candidates to recall the learned or memorized information or data.

##### **Examples**

- A child reciting the alphabets of English
- Memorization and reproducing the dates and other facts etc.  
e.g. Pakistan came into being on 27th Night of Ramadan-ul-Mubarak.

##### **Related Verbs (Command Words)**

Arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce, state etc.

##### **ii. Understanding (U)**

Understand (also called Comprehension) refers to ability of the candidates to comprehend (a set of) information and/or situation and provide his/her response to it accordingly.

##### **Examples**

- Performing analyses and illustrating the observations
- Comprehending the concepts of Social, Natural and Physical Sciences  
e.g. Discuss different types of noise and their impact on human health briefly.

##### **Related Verbs (Command Words)**

Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate, rephrase, differentiate, compare etc.

##### **iii. Application (A)**

Application refers to the ability to use learned material in new and concrete situation to solve problems and/or to design a schedule or task.

##### **Examples**

- Performing analyses and illustrating the observations
- Comprehending the concepts of Social, Natural and Physical Sciences  
e.g. Illustrate the similes and metaphors given in the poem Daffodils.

##### **Related Verbs (Command Words)**

Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write etc.

## II. Sections of Paper

There are three or four (03 or 04) sections in each question paper:

### i. Section-A

Contains Multiple Choice Questions (MCQs). All questions are compulsory without any external or internal choice. Usually comprises of 20% of total marks of the (theory if applicable) paper.

### ii. Section B

Contains Short Response Questions (SRQ). Candidates may have external choice up to 33%. In addition to that internal choice may also be offered based upon model, content and/or nature of the subject.

- This section may contain almost 50% of total marks in some subjects of the (theory if applicable) paper.

### iii. Section C

This section usually contains Extended Response Questions (ERQ). Candidates may have external choice in the questions. In addition to that internal choice may also be offered based upon model, content and/or nature of the subject. For ERQs it should contain around 30% of total marks in some subjects of the (theory if applicable) paper.

## III. Choice

Sometimes the candidates are required to attempt a certain number of questions from a given pool or group of questions, it is commonly known as choice in questions.

There are two types of choices

### i. External Choice

Whenever the candidates are required to solve (respond to) a certain number of questions from a given pool it is called external choice. This choice may be around 33% in a section.

- e.g.
1. Answer any six parts in about 30-40 words each.  
(Out of eight questions)
  2. Attempt any eight questions from the following.  
(Out of eleven questions)

### ii. Internal Choice

Whenever the candidates have to solve (respond to) a question mandatorily but they have an option within the question it is called internal choice.

- e.g.
1. Paraphrase any ONE of the following stanzas.
    - a. Stanza 1
    - b. Stanza 2
  2. Translate the following: (Some sentences for translation are given)

**OR**

Write a Dialogue between a beggar and a citizen

## 2. Disclaimers

- I. The cognitive levels written in sample model paper are for explanation purpose only. In the actual question papers administered during examination shall not contain description of these cognitive domains.
- II. Association of the cognitive domains is solely based on subject expert's judgment and may be subject to errors and/or omissions.
- III. In the class rooms and during teaching the candidates (students) need to be taught about the time management in accordance with allocation of marks to the questions.



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 \_\_\_\_\_ mode of communication.  
A. Simplex  
B. Full Simplex  
C. Half Duplex  
D. Full Duplex
11. Cellular radio system divides the service area into smaller areas called:  
A. Pods  
B. Cells  
C. Cubes  
D. Sectors
12. Which wireless technology is used in TV remotes and Toys?  
A. Infrared  
B. Bluetooth  
C. Wi-Fi  
D. Wi-Max
13. A relation consist of 10 attributes and 100 tuples then the degree of relation is:  
A. 1  
B. 10  
C. 100  
D. 1000
14. What is the degree of relationship between entities AUTHOR and BOOK ?  
A. Unary  
B. Binary  
C. Ternary  
D. Recursive
15. The **Student-ID** field is a primary key in **STUDENT** table. The **student-ID** in related **EXAM** table is called as -----  
A. Candidate key  
B. Secondary key  
C. Alternate key  
D. Foreign key
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Federal Board HSSC-I Examination  
Computer Science Model Question Paper  
(Curriculum 2009 – NBF)

Time allowed: 2.40 hours

Total Marks: 60

Note: Sections ‘B’ ‘C’ and ‘D’ comprise pages 1-3 and questions therein are to be answered on the separately provided answer book. Use supplementary answer sheet i.e., sheet B if required. Write your answers neatly and legibly.

**SECTION – B (Marks 18)**

<b>Note: Section-B consists of following topics of the syllabus:</b>			
1. Overview of Computer System	2. Computer Memory		
3. Central Processing Unit	4. Inside System Unit		

Q.2 Attempt any **SIX** parts from the following. All parts carry equal marks. (6 × 3 = 18)

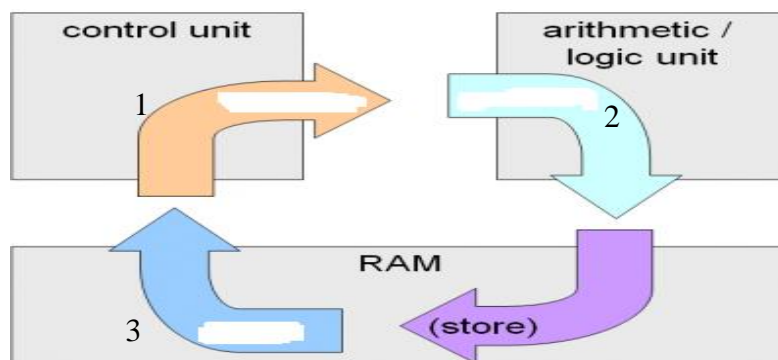
i. Answer the following question using the grid box given below:

#	Questions (Select the right grid box number(s) for your answer)	Box No.
a	Identify type of computer built by Cray Incorporation.	
b	Which type of computer use VLSI technology?	
c	How many user(s) can a Mini computer support?	

GRID BOX

1 Super Computer	4 Industrial process control	7 IBM System/36
2 Hundreds of Users	5 Atomic Energy Research Centre	8 Mini computer
3 Micro Computer	6 Thousands of Users	9 Mainframe

- ii. Differentiate between hand-held scanner and barcode reader.
- iii. State three differences between magnetic memory and optical memory.
- iv. If the size of Memory Buffer Register (MBR) is 8 bit and size of Memory Address Register (MAR) is 16 bit, calculate the maximum size of memory in bytes that can be accessed.
- v. Write down functions of any three special purpose registers.
- vi. Label the following diagram to show a machine cycle:



- vii. Why is RISC architecture better than CISC? Support your answer with the help of example.
- viii. What is the purpose of the following expansion slots?
  - a. AGP                      b. PCI                      c. PCI Express
- ix. What is the function of BIOS in the computer?

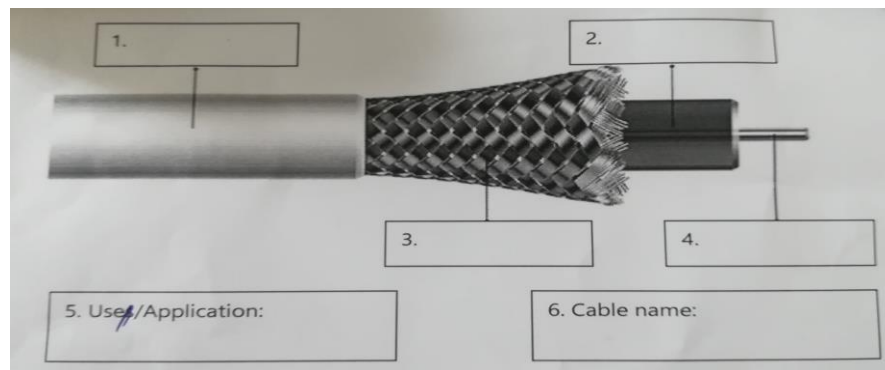
**SECTION – C (Marks 18)**

**Note: Section-C consists of following topics of the syllabus:**

5. Network Communication Protocol	6. Wireless Communication
7. Database Fundamentals	8. Database Development

Q.3 Attempt any **SIX** parts from the following. All parts carry equal marks. (6 × 3 = 18)

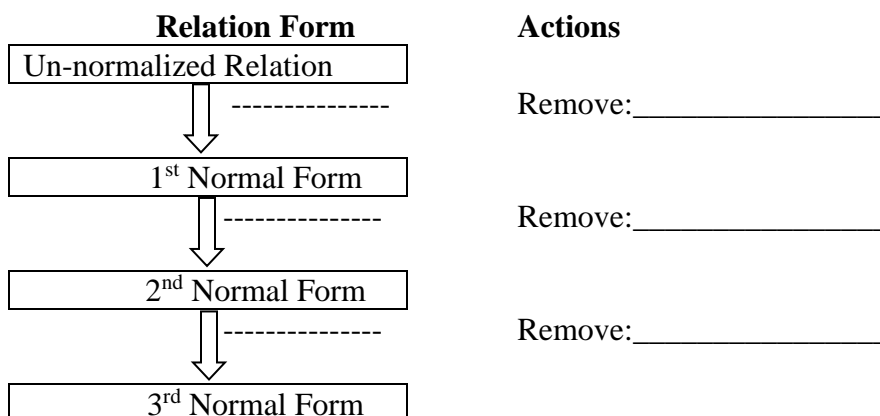
- i. Label different parts, name and uses of the following cable:



- ii. Give any three limitations of guided communication media.
- iii. Differentiate between Client-Server and Peer-to-Peer networks.
- iv. Categorize the following topologies as per characteristics (Bus, Mesh, Ring, Star):

Expensive	Least Cabling

- v. Write any three common applications of Infra-Red technology in daily life.
- vi. Write any three responsibilities of DBA.
- vii. 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.
- viii. What actions should be taken to complete the normalization process given below?



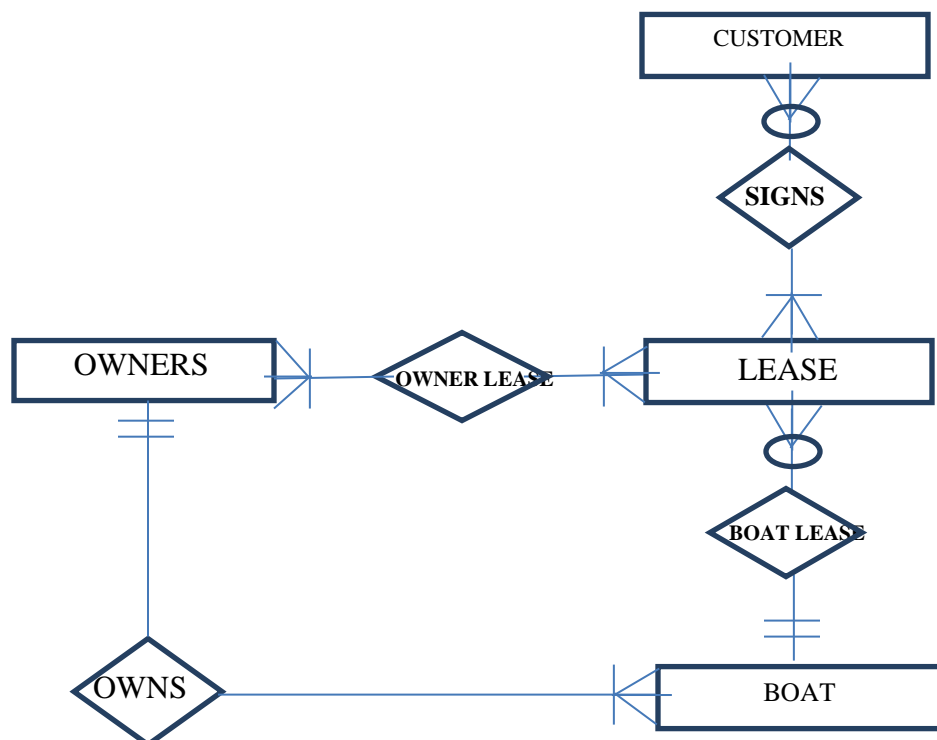
- ix. Select appropriate Primary key, candidate key and secondary key in the following table. Identify the number of tuples and attributes in the table.

Reg No.	Roll No.	Name	DOB	Address	Phone
CS12/05	1	ASIF	12-05-1999	G-7 IBD	923587
MGN34/21	6	KAMAL	26-08-2000	G-9 IBD	927375

### SECTION – D (Marks 24)

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

- Q.4 Describe the following modern uses of computer in today's life with examples: (8)  
 i. Mobile Computing                      ii. Internet of things                      iii. Cloud Computing
- Q.5 Explain different types of Instruction Formats with examples. (8)
- Q.6 How is OSI model different from TCP/IP model? Describe the protocols and devices used on different layers of OSI model. (8)
- Q.7 Understand the ER Diagram and write the answers of following questions: (8)



- List one example of one-to-many relationship.
- Mention Entities used in ER diagram.
- What is the degree of relationship between CUSTOMER and LEASE?
- What is the minimum cardinality of the relationship between CUSTOMER and LEASE?
- How many minimum BOATs an OWNER must own?
- How many minimum BOATs are required for BOAT-LEASE?

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