

**AGA KHAN UNIVERSITY EXAMINATION BOARD**  
**HIGHER SECONDARY SCHOOL CERTIFICATE**  
**CLASS XI**  
**MODEL EXAMINATION PAPER 2023 AND ONWARDS**  
**Computer Science Paper II**  
**Time: 1 hour 30 minutes    Marks: 35**

**INSTRUCTIONS**

**Please read the following instructions carefully.**

1. Check your name and school information. Sign if it is accurate.

**I agree that this is my name and school.**  
**Candidate's Signature**

**RUBRIC**

2. There are EIGHT questions. Answer ALL questions. Question 7 & 8 offers TWO choices. Attempt any ONE choice.
3. When answering the questions:  
  
Read each question carefully.  
Use a black pointer to write your answers. DO NOT write your answers in pencil.  
Use a black pencil for diagrams. DO NOT use coloured pencils.  
DO NOT use staples, paper clips, glue, correcting fluid, or ink erasers.  
Complete your answer in the allocated space only. DO NOT write outside the answer box.
4. The marks for the questions are shown in brackets ( ).
5. You may use a scientific calculator if you wish.

Q.1. (Total 6 Marks)

i. List the names of any THREE automatic data capturing devices. (3 Marks)

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ii. Write any ONE daily life use of each of the devices named in part (i). (3 Marks)

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Q.2. (Total 3 Marks)

There are three types of ROM.

Describe the one salient feature of each type of ROM.

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Q.3.

(Total 3 Marks)

Read the following THREE operations performed by computer instructions.

1. Repetition of a set of programming statements.
2. Shifting an operand bit by bit to the right or to the left.
3. Loading memory contents into a register.

Categorise the given operations in the following table.

Data Transfer Instruction	Data Processing Instruction	Data Control Instruction

Q.4.

(Total 3 Marks)

i. Write ONE function of a sound card.

(1 Mark)

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ii. Draw a block diagram to show working of sound card when it takes

I. voice input from a microphone.

(1 Mark)

II. digital sound input from a computer.

(1 Mark)

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Q.5. (Total 3 Marks)

Define the following terms:

i. Radio Signal

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ii. Radio Transceiver

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iii. Access Point

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Q.6.

(Total 3 Marks)

A college has a database named 'college' that has three tables, i.e. teacher, course and department.

Each teacher can teach multiple courses but each course should be taught by a single teacher only.

Each teacher is affiliated to one department and multiple departments offer the same course.

**Teacher**

Teacher_ID	Teacher Name	Age	Contact Number

**Course**

Course_ID	Course Name	Credit Hours

**Department**

Department_ID	Department Name

With reference to the given information, draw the entity-relationship diagram (ERD) for the college database to meet the given requirements.

**Space for ERD**

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Q.7. (Total 7 Marks)

**EITHER**

- a.
- i. Describe cardinality and modality. (2 Marks)
  - ii. Discuss the different degrees of relationships in an entity relationship diagram (ERD). (5 Marks)

**OR**

- b. A database table named as **Customer** has fields **ID, Name, Address, City, Postal\_Code** and **Country**.

Write SQL queries for this database table to

- i. retrieve the records of all the customers that are living in the England or Turkey. (2 Marks)
- ii. retrieve the number of customers in each country. (3 Marks)
- iii. retrieve the records of all the customers that are not living in Islamabad or Medina. (2 Marks)

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Q.8.

(Total 7 Marks)

**EITHER**

a. Describe the basic components of network communication with the help of a diagram.

**OR**

b.

i. Differentiate between short and long distance wireless communication. (1 Mark)

ii. Describe any THREE short distance wireless communication technologies (6 Marks)

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