

**AGA KHAN UNIVERSITY EXAMINATION BOARD
HIGHER SECONDARY SCHOOL CERTIFICATE**

CLASS XI

ANNUAL EXAMINATIONS 2022

Computer Science

Total Time: 2 hours 10 minutes

Total Marks: 65 (50-Theory & 15-Alternate to Practical)

INSTRUCTIONS

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 65 only.
4. Question Distribution:

Theory	Alternate to Practical (ATP)
50 MCQs	15 MCQs

5. In each question, there are four choices A, B, C, D. Choose ONE. On the answer grid, black out the circle for your choice with a pencil as shown below.

Correct Way	Incorrect Ways
1 (A) (B) (C) (D)	1 (A) (B) (C) (D)
	2 (A) (B) (C) (D)
	3 (A) (B) (C) (D)
	4 (A) (B) (C) (D)

Candidate's Signature

6. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
7. DO NOT write anything in the answer grid. The computer only records what is in the circles.
8. The marks obtained on the 50 MCQs will be equated to the total marks of 85 for the theory examination results.
9. You may use a scientific calculator if you wish.

THEORY (Questions 1-50)

1. Rawaha has downloaded a text editor. He can use some of its features for ten days. After ten days, he must purchase it to use the software further and get benefit from all of its features.

This software is an example of

- A. licensed software.
 - B. freeware software.
 - C. shareware software.
 - D. open source software.
2. When a transaction is made using the Automated Teller Machine (ATM), then the information is updated in the bank database.

The bank database stores this information in

- A. RAM.
 - B. ROM.
 - C. hard disk.
 - D. flash drive.
3. Which of the following options shows the CORRECT categorisation of computers based on their cost?

	Low Cost → High Cost		
A	Supercomputer	Mainframe Computer	Minicomputer
B	Mainframe Computer	Minicomputer	Supercomputer
C	Minicomputer	Mainframe Computer	Supercomputer
D	Supercomputer	Minicomputer	Mainframe Computer

4. The MOST appropriate computer system used for designing and controlling fighter planes and rockets is
- A. minicomputer.
 - B. supercomputer.
 - C. microcomputer.
 - D. mainframe computer.
5. A software assists the operating system in providing a virus-free environment to the users.

This software is an example of

- A. device driver.
- B. utility software.
- C. operating system.
- D. productivity software.

6. Consider the given examples of software.

- I. Games
- II. Compiler
- III. Disk Cleaner
- IV. Database Management System

The examples of system software are

- A. I and II.
- B. I and IV.
- C. II and III.
- D. III and IV.

7. The set of examples of automatic data capture devices is

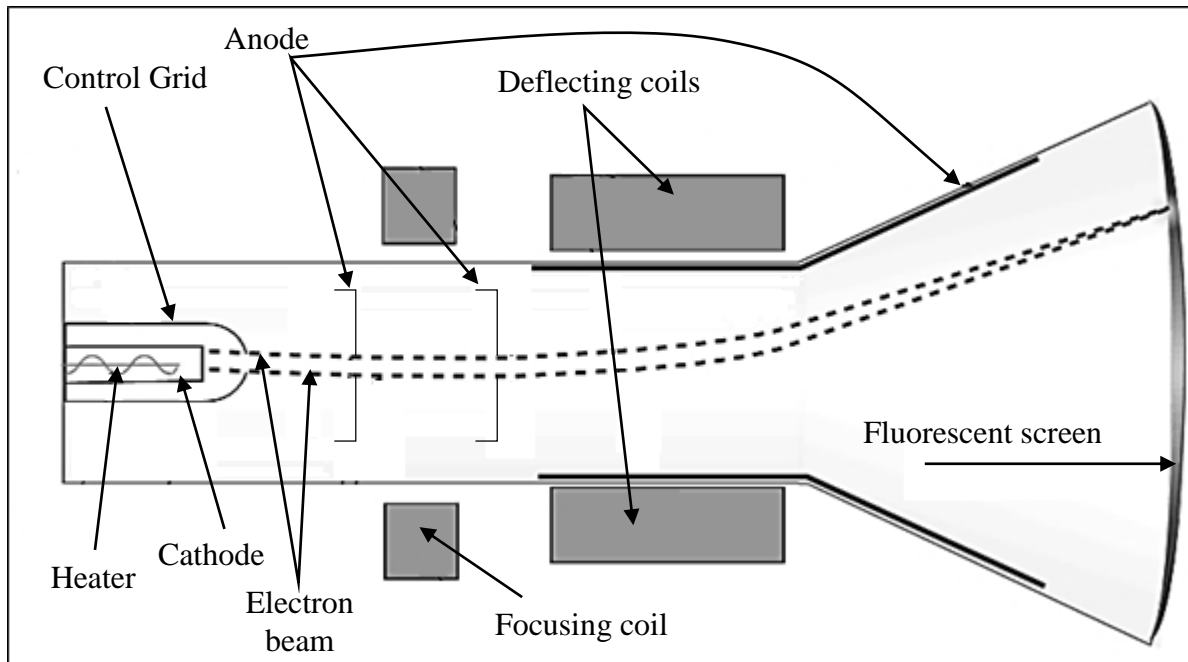
- A. scanner and microphone.
- B. scanner and barcode reader.
- C. microphone and magnetic card reader.
- D. barcode reader and magnetic card reader.

8. In contrast to the capacitive and the infrared touch screen technologies, the resistive technology

- A. is a very expensive technology.
- B. uses only glass as the screen material.
- C. has poor screen visibility in strong sun light.
- D. is more durable than other two technologies.

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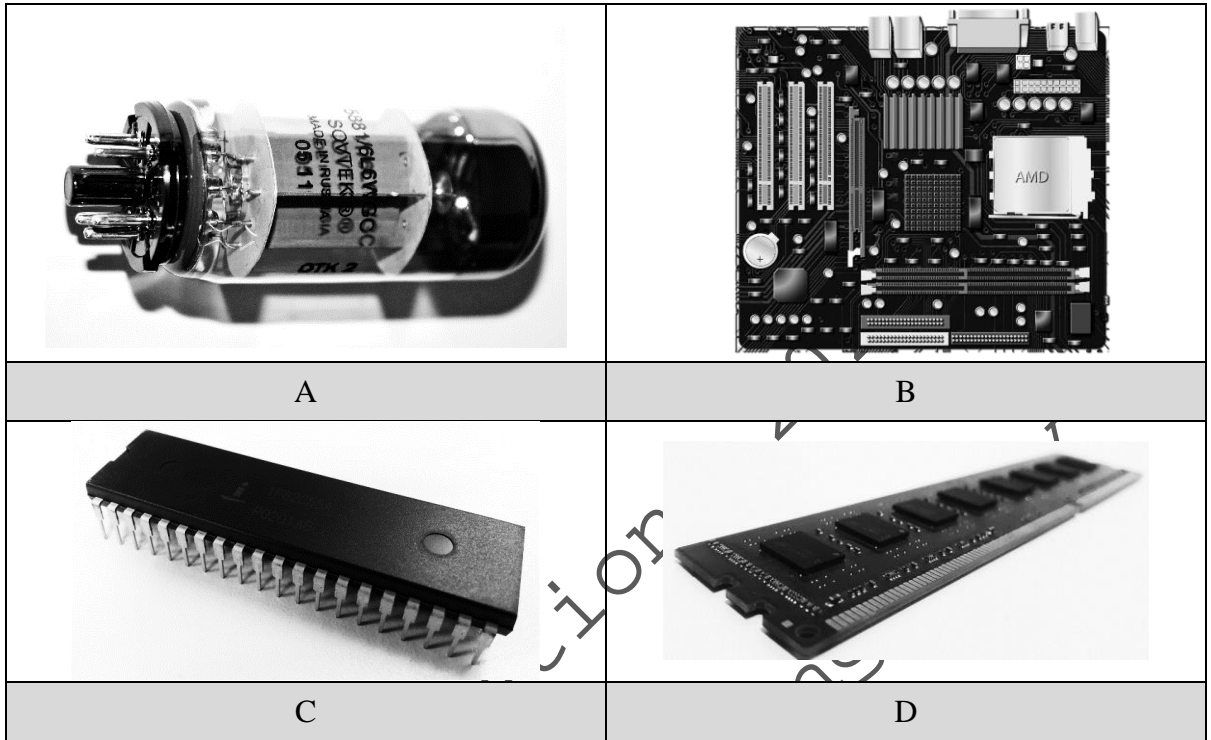
9. Consider the given image.



The type of device whose internal working is shown in this image is an example of

- A. plotter.
 - B. printer.
 - C. monitor.
 - D. projector.
10. Which of the following output devices used cold cathode fluorescent lamp (CCFL) as the backlighting method?
- A. Digital Light Projectors
 - B. Light Emitting Diode Monitors
 - C. Liquid Crystal Display Monitors
 - D. Liquid Crystal Display Projectors
11. In contrast to inkjet printers, the laser printers
- A. use liquid ink to print text and images.
 - B. use properties of static electricity to produce text and images.
 - C. print a page line by line rather than printing a whole page in a go.
 - D. use a stepper motor and belt which moves the print head assembly across the page.
12. Which of the following devices can perform both input and output operations?
- A. Printer
 - B. Scanner
 - C. Light pen
 - D. Touch screen

13. An example of storage device is



14. IBM Thinkpad and Toshiba Satellite series are examples of

- A. minicomputer.
- B. supercomputer.
- C. microcomputer.
- D. mainframe computer.

15. The smallest accessible unit of memory is

- A. bit.
- B. byte.
- C. word.
- D. nibble.

16. If one character occupies 8 bits in a computer memory, then the number of bytes required to store the word ADD-ON will be

- A. 5 bytes.
- B. 6 bytes.
- C. 40 bytes.
- D. 48 bytes.

17. In binary system, on converting 2KB of memory into bytes, the result will be

- A. 2048 bytes.
- B. 2000 bytes.
- C. 1024 bytes.
- D. 1000 bytes.

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18. The CORRECT features of ROM are

- I. expensive
 - II. read only operations
 - III. read and write operations
 - IV. pre-programmed memory
- A. I and III.
 - B. II and III.
 - C. II and IV.
 - D. III and IV.

19. Given are the features of one of the types of memory.

- It consumes low power.
- It has the least access time.
- It has the fastest processing time.

Based on these features, the type of memory identified is

- A. PROM.
- B. SRAM.
- C. DRAM.
- D. EPROM.

20. The major characteristics of any memory device are

- I. cost
 - II. access time
 - III. access mode
 - IV. data transfer rate
- A. I, II and III.
 - B. I, II and IV.
 - C. I, III and IV.
 - D. II, III and IV.

21. An example of sequential storage device is

- A. DVD.
- B. flash drive.
- C. magnetic tape.
- D. magnetic disk.

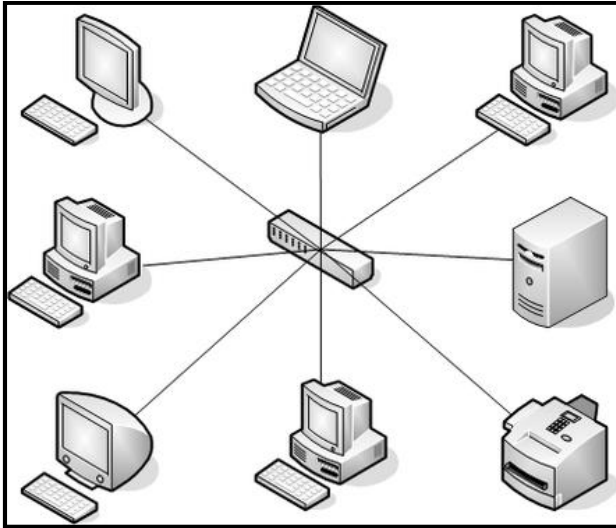
22. The device that has the highest storage capacity is

- A. CD.
- B. DVD.
- C. Floppy disk.
- D. Blue-ray disk.

23. All of the following are examples of secondary storage EXCEPT
- A. registers.
 - B. optical disk.
 - C. chip memory.
 - D. magnetic tape.
24. One of the types of volatile memory is
- A. SRAM.
 - B. PROM.
 - C. EPROM.
 - D. EEPROM.
25. The number of functions performed by BIOS is
- A. 1
 - B. 2
 - C. 3
 - D. 4
26. In comparison to magnetic tape, magnetic disk is better because
- I. it is less expensive.
 - II. it provides direct access.
 - III. it can add data to existing device.
- A. I only.
 - B. III only.
 - C. I and II.
 - D. II and III.
27. A type of network that uses infrared and Bluetooth technologies for data communication is
- A. wide area network.
 - B. local area network.
 - C. personal area network.
 - D. metropolitan area network.
28. Which of the following media has the HIGHEST data rate?
- A. Coaxial cable
 - B. Telephone cable
 - C. Fibre optic cable
 - D. Twisted pair cable
29. A device that forwards data on the basis of IP address is
- A. hub.
 - B. router.
 - C. switch.
 - D. network interface card.

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30. Consider the given image



The topology in the given image is an example of a

- A. bus topology.
 - B. star topology.
 - C. ring topology.
 - D. mesh topology.
31. A network topology in which all nodes are connected to each other is called
- A. bus topology.
 - B. star topology.
 - C. tree topology.
 - D. mesh topology.
32. Consider the given protocols.
- I. FTP
 - II. SSL
 - III. HTTP
 - IV. IMAP

The protocols that work on the application layer of OSI model are

- A. I and II.
- B. I and III.
- C. II and IV.
- D. III and IV.

33. Consider the given responsibilities.

- I. It provides and manages the mechanism of routing.
- II. It adds logical address of sender and receiver to each protocol data unit.

An OSI model layer which has these responsibilities is

- A. session layer.
- B. network layer.
- C. data link layer.
- D. application layer.

34. The number of layers in TCP/ IP model is

- A. two.
- B. four.
- C. six.
- D. seven.

35. The default subnet mask of Class A of IPv4 address is

- A. 255.0.0.0
- B. 255.255.0.0
- C. 255.255.255.0
- D. 255.255.255.255

36. An IPv4 address is made up of

- A. 4 bits.
- B. 8 bits.
- C. 4 bytes.
- D. 8 bytes.

37. An IPv4 address has 8 bits for network ID and 24 bits for host ID. This IP address belongs to

- A. class A.
- B. class B.
- C. class C.
- D. class D.

38. Consider the given examples of IPv4 address.

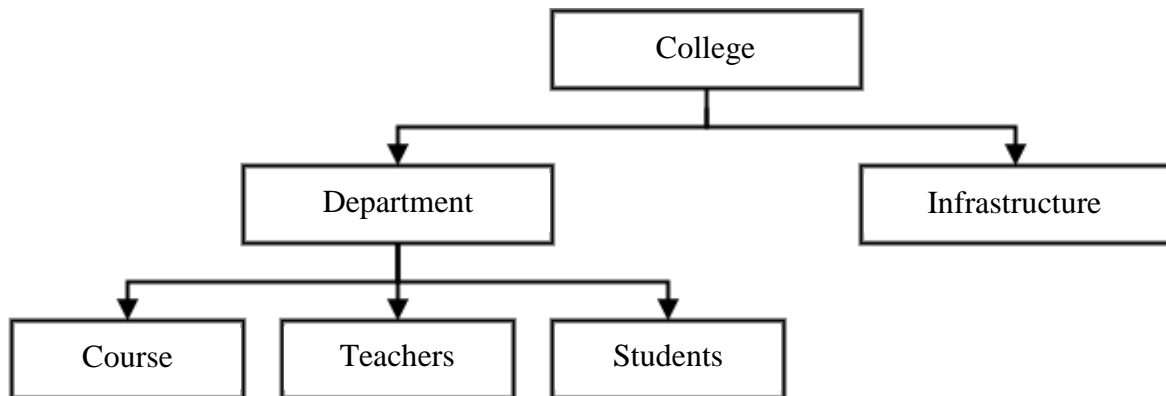
- I. 192.200.258.240
- II. 200.100.127.192
- III. 250.150.200.125
- IV. 165.265.189.233

The INVALID examples of IPv4 addresses are

- A. I and II.
- B. I and IV.
- C. II and III.
- D. III and IV.

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39. Consider the given block diagram of a database model.



This is an example of

- A. network database model.
- B. relational database model.
- C. hierarchical database model.
- D. object-oriented database model.

40. Consider the given tasks.

- I. Inserting data into the database.
- II. Deleting objects from the database
- III. Deleting records from the database
- IV. Granting permissions to the database users

The task(s) performed by data control language of SQL is/ are

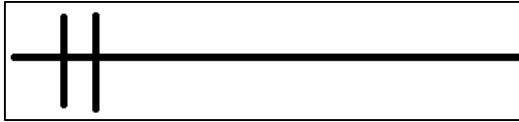
- A. I only.
- B. IV only.
- C. I, II and III.
- D. II, III and IV.

41. The name of data type used in the field Married is

ID	FirstName	Married
1	Omar	<input checked="" type="checkbox"/>
2	Fatima	<input type="checkbox"/>
3	Muneeb	<input type="checkbox"/>
4	Wajeeha	<input checked="" type="checkbox"/>

- A. Text.
- B. Yes/No.
- C. Number.
- D. OLE Object.

42. Consider the given image representing cardinality and modality.



The CORRECT interpretation of cardinality and modality from the given image is that

- A. cardinality is one and modality is one.
 - B. cardinality is zero and modality is zero.
 - C. cardinality is zero and modality is many.
 - D. cardinality is many and modality is many.
43. In MS Access, a form allows the user all of the following EXCEPT to
- A. view records.
 - B. update a field.
 - C. delete records.
 - D. set the primary key.
44. The types of layouts available to create forms in MS Access are
- A. two.
 - B. three.
 - C. four.
 - D. five.

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45. Consider the given database table named as **WTRData** that shows the data of T20I women's cricket teams that are placed at 6th to 10th positions as on January 5, 2020.

Position	Country	WeightedMatches	Points
6	South Africa	24	5776
7	Pakistan	31	7080
8	Sri Lanka	22	4420
9	Bangladesh	29	5641
10	Ireland	22	3622

(Source: <https://www.icc-cricket.com/rankings/womens/team-rankings/t20i>)

If the descending sort is applied on the field **Country** of this table, then in which order will the values in **WeightedMatches** appear?

22	29
24	22
31	31
22	24
29	22
A	B
22	31
22	29
24	24
29	22
31	22
C	D

46. Which of the following tasks is done ONLY in design view of table?
- Spell check
 - Sorting data
 - Inserting data
 - Changing Data Type
47. Which of the following can be used as a field name in MS Access database table?
- LastName!
 - Last.Name
 - [LastName]
 - L@\$tName

48. The SQL query to display the records from the table named as Invoice for first six months of 2019 is

A	Select * From Invoice Where OrderDate >= #1/1/2019# AND OrderDate <= #6/30/2019#;
B	Select * From Invoice Where OrderDate = #1/1/2019# AND OrderDate = #6/30/2019#;
C	Select * From Invoice Where OrderDate >= '1/1/2019' AND OrderDate <= '6/30/2019';
D	Select * From Invoice Where OrderDate = '1/1/2019' AND OrderDate = '6/30/2019';

49. In MS Access database, a table field with text data type can store up to
- A. 127 characters.
 - B. 255 characters.
 - C. 512 characters.
 - D. 1024 characters.
50. Shakir wants to apply the following restriction on a field of MS Access database table having numeric data type.

Data entry must be blank or greater than 500

To apply the given restriction, the CORRECT data validation rule will be

- A. < 500 Or 0?
- B. > 500 Or Is 0
- C. > 500 Or Is Null
- D. < 500 Or Is "Null"

ALTERNATE TO PRACTICAL (ATP: Questions 51-65)

Use the given database table named as Employee_Info to answer Q.51, Q.52, Q.53, Q.54 and Q.55.

Employee_ID	Employee_Name	Country	Salary	Joining_Date
1	Ali	Pakistan	\$15,000.00	1/4/2021
2	John	USA	\$20,000.00	9/1/2019
3	Ali	Bangladesh	\$15,000.00	9/1/2019
4	Rahul	India	\$18,000.00	1/10/2022
5	Adnan	Pakistan	\$22,000.00	4/8/2019
6	Kinza	Pakistan	\$15,000.00	4/8/2019

51. In the given table, the field that will be set as a primary key is
- Salary
 - joining_Date
 - Employee_ID
 - Employee_Name
52. The data type used for the field Salary is
- Text.
 - Memo.
 - Lookup.
 - Currency.
53. If the given condition is entered, then the employees' names fetched will be

(Country="Pakistan") AND (Salary=15000)

Ali Adnan Kinza	Adnan Kinza
A	B
Ali Ali Kinza	Ali Kinza
C	D

54. Which condition will be used to find the data of employees whose Salary is greater than \$20,000?
- A. Salary>20,000
 - B. Salary>20000
 - C. Salary>"20000"
 - D. Salary IS GREATER THAN 20000
55. If a condition is given to fetch the employee's/ employees' name(s) from Pakistan or India and their date of joining is 4/8/2019, then the number of records displayed will be
- A. 1
 - B. 2
 - C. 3
 - D. 4
56. Consider the given form named as **Vehicle_Info**.

Reg_No	
V121	
Company	
Fonda	
Model	
Rezel	
Color	
White	
Year	2019

The layout of the form is

- A. tabular.
- B. justified.
- C. datasheet.
- D. columnar.

Use the given database table named as **Vehicle_Info** to answer **Q.57, Q.58 and Q.59.**

Reg_No	Company	Model	Color	Year
V121	Fonda	Rezel	White	2019
V122	Photon	Gaga	Black	2022
V123	Buzuki	Gultus	Silver	2021
V124	Toyoto	Norolla	Black	2020
V125	Buzuki	Diaz	Grey	2019

57. The query created in design view to display complete record(s) of vehicles with black color is

A	Field: Reg_No Company Model Color Year Table: Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Sort: Show: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Criteria: or:
B	Field: Reg_No Company Model Color Year Table: Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Sort: Show: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Criteria: = 'Black' or:
C	Field: Reg_No Company Model Color Year Table: Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Sort: Show: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Criteria: = 'Black' or:
D	Field: Reg_No Company Model Color Year Table: Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Vehicle_Info Sort: Show: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Criteria: = 'Black' or:

58. The query created in design view to change the color of Buzuki Gultus to Black from Silver is

A	Field:	[Reg_no]	[Company]	[Model]	[Color]	[Year]
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Update To:				"Black"	
	Criteria:	= "V123"				
	or:					
B	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Update To:				'Black'	
	Criteria:		= 'Buzuki'			
	or:					
C	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Update To:				'Silver'	
	Criteria:		= 'Buzuki'			
	or:					
D	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Update To:				'Silver'	
	Criteria:	= 'V123'	= 'Buzuki'			
	or:					

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59. The query created in design view to delete an existing record of Buzuki Diaz is

A	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Delete:	Where	Where	Where	Where	Where
	Criteria:		= 'Diaz'			
	or:					
B	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Delete:	Where	Where	Where	Where	Where
	Criteria:		= 'Buzuki'	= 'Diaz'		
	or:					
C	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Delete:	Where	Where	Where	Where	Where
	Criteria:					= 2019
	or:					
D	Field:	Reg_No	Company	Model	Color	Year
	Table:	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info	Vehicle_Info
	Delete:	Where	Where	Where	Where	Where
	Criteria:	= 'Buzuki'	= 'Diaz'			
	or:					

60. If a student wants to add a new record to an existing table by using data from other sources, then the type of query used will be

- A. alter.
- B. insert.
- C. update.
- D. append.

61. The layout of the given report is

Vehicle_Info			
Reg_No	Company	Model	Color
V121	Fonda	Rezel	White
V122	Photon	Gaga	Black
V123	Buzuki	Gultus	Black
V124	Toyoto	Norolla	Black

Page 1 of 1

- A. Block.
- B. Outline.
- C. Stepped.
- D. Datasheet.

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Use the given database table named as Student and its specifications to answer Q.62, Q.63 and Q.64.

Std_ID	Std_Name	Total_CreditHours	DateofAdmission	Email_Address
1	Abida	20	4/5/2020	abida@xyz.com
2	Kashifa	20	3/7/2021	kashifa@xyz.com
3	Mahad	14	13/9/2020	mahad@xyz.com

Specifications

The Std_ID field is a primary key.

The DateofAdmission field should have Date as data type.

The Total_CreditHours field should have numeric data type.

The name field should store up to 50 text characters and cannot be left empty.

The email column can only store unique values.

62. The SQL query to create the table with the given specification is

<pre>CREATE TABLE Student (Std_ID int PRIMARY KEY, Std_Name text(50) NOT NULL, Total_CreditHours numeric, DateofAdmission date, Email_Address text(50) NOT NULL);</pre>	<pre>CREATE TABLE Student (Std_ID int PRIMARY KEY, Std_Name text(50), Total_CreditHours int, DateofAdmission date, Email_Address text(50) unique);</pre>
A	B
<pre>CREATE TABLE Student (Std_ID int PRIMARY KEY, Std_Name text(50) NOT NULL, Total_CreditHours int, DateofAdmission date, Email_Address text(50) unique);</pre>	<pre>CREATE TABLE Student (Std_ID int, Std_Name text(50) NOT NULL, Total_CreditHours int, DateofAdmission date, Email_Address text(50), Primary key (Std_ID));</pre>
C	D

63. In this table a new column named CourseDescription is needed which can store alphanumeric values up to 50 characters. The CORRECT query for this purpose is

UPDATE TABLE Student ADD COLUMN Course-Description varchar(50);	ALTER TABLE Student ADD COLUMN CourseDescription varchar(50);
A	B
UPDATE TABLE Student ADD CourseDescription varchar(50);	ALTER TABLE Student ADD Course-Description varchar(50);
C	D

64. The record with Std_ID 3 needs to be edited according to the given criteria.

Change Std_Name to Umar
Change Email_Address to umar@xyz.com

The SQL query for the given criteria is

UPDATE Student SET Std_Name="Umar",Email_Address="umar @xyz.com" WHERE Std_ID=3;	UPDATE Student SET (Std_Name="Umar" AND Email_Address="umar@xyz.com") WHERE Std_ID=3;
A	B
UPDATE TABLE Student SET Std_Name='Umar' && Email_Address='umar@xyz.com' WHERE Std_ID=3;	UPDATE TABLE Student SET Std_Name='Umar' AND Email_Address='umar@xyz.com' WHERE Std_ID='3';
C	D

65. Consider a database table named Employee with the fields ID, Name, Address, City and Country.

The SQL query that will delete all the records of employees whose ID is 1 will be

- A. DELETE FROM Employee WHERE ID=1;
- B. DELETE FROM Employee WHERE ID='1';
- C. DELETE FROM Employee WHERE ID= =1;
- D. DELETE FROM Employee WHERE ID EQUALS 1;

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