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22/11/18

ST. LAWRENCE HIGH SCHOOL

SELECTION TEST EXAM – 2018
CLASS – 12

SUBJECT – COMPUTER APPLICATION_SOLUTION
DURATION – 3 HOURS 15 MINUTES

F.M.: 70
DATE - 15.11.2018

GROUP - A

1. Select the correct option: 1X21=21

i) Which of the following logical operation is represented by the '+' sign?:
(a) NOT (b) AND (c) OR (d) Inversion

ii) A decimal too binary encoder circuit has how many output lines? :
(a) 1 (b) 2 (c) 3 (d) 4

iii) When all computers in a network are connected to an open ended single cable, it form the following topology:
(a) Bus (b) Ring (c) Star (d) Mesh

iv) A Gateway acts as a _____ between two networks running incompatible communication protocols:
(a) Filter (b) Translator (c) Switch (d) Connector

v) The design & structure of a database is usually specified by the :
(a) DCL (b) DML (c) DDL (d) DQL

vi) In the relational model, a relation means :
(a) A row (b) A column (c) A relationship (d) A table

vii) The file extension of an Access 2007 file is :
(a) .db (b) .acc (c) .mdb (d) .accdb

viii) For a Half Adder circuit, adding the bits A & B, the Carryout but expression is given by :
(a) $\overline{A}B$ (b) $A\overline{B}$ (c) $\overline{A}\overline{B}$ (d) AB

ix) In a Multiplexer, 'm' control bits can be used to select a maximum of _____ input lines:

(a) 2m (b) 2m (c) m^2 (d) m

x) Any IP address is how many bits in length?

(a) 32 (b) 48 (c) 64 (d) None of These

xi) HTML code is saved using _____ extension :

(a).hml (b) .htm (c) .htl (d) .htnl

xii) Which operation in Relational Algebra selects a subset of columns from a relation R?

(a) Selection (b) Projection (c) Rename (d) Cross Product

xiii) Which of the following strings can be used in SQL to check if a name starts with 'SA'?

(a) 'SA _ _' (b) 'SA _ %' (c) 'SA%' (d) 'SA'

xiv) Which of the following is a relative reference of a cell in Excel?

(a) $\$A3$ (b) $\$A\$3$ (c) $A3$ (d) $A\$3$

xv) How many NAND gates are required to form a NOT gate? :

(a) 4 (b) 3 (c) 2 (d) 1

xvi) Usually domain names of servers used for the World Wide Web begins with :

(a) www (b) w3c (c) ftp (d) http

xvii) Any IP address that starts with a '0' in binary in the first bit of the first octet falls under which class of address?

(a) A (b) B (c) C (d) D

xviii) In an ER diagram of a database, a rectangle represents:

(a) an entity (b) a key

(c) a relationship (d) an attribute

xix) The technical person who is responsible for overall fine tuning of the database is :

(a) DBA (b) BBA (c) MBA (d) CBA

xx) When data is graphically represented in EXCEL, it is called:

(a) Chart (b) Graph (c) Clipart (d) Pictures

xxi) **The default number of tabs displayed on the ribbon for a blank database in Access 2007 is :**

(b) 4 **(b) 3** **(c) 2** **(d) 1**

2. **Answer the following questions in brief(Alternatives are to be noted) :** **1X14 = 14**

i) **Express the following formula in Excel:**
If the value of cell 'C1' is greater than 40, then display 'PASS' in cell 'D1', otherwise display 'FAIL' in cell 'D1'.
A: =IF(C1>40,"Pass","Fail")

ii) **State any one use of MS Access.**
A: Very simply, Microsoft Access is an information management tool that helps you store information for reference, reporting, and analysis. Microsoft Access helps you analyze large amounts of information, and manage related data more efficiently than Microsoft Excel or other spreadsheet applications.

iii) **What is the use of DISTINCT clause in SQL?**
A: The SELECT **DISTINCT** statement is used to return only **distinct** (different) values. Inside a table, a column often contains many duplicate values; and sometimes you only want to list the different (**distinct**) values.

OR

Name the 2 wild card characters used for string matching in SQL.
A: % (percent sign) & _ (underscore)

iv) **State one difference between Selection & Projection operations in Relational Algebra.**
A: Select Operation : This operation is used to select rows from a table (relation) that specifies a given logic, which is called as a predicate. The predicate is a user defined condition to select rows of user's choice.
Project Operation : If the user is interested in selecting the values of a few attributes, rather than selection all attributes of the Table (Relation), then one should go for PROJECT Operation.

OR

What is Cartesian Product in terms of Relational Algebra?
A: The **Cartesian Product** is also an operator which works on two sets. It is sometimes called the **CROSS PRODUCT** or **CROSS JOIN**. It combines the tuples of one relation with all the tuples of the other relation.

v) **Write the full form of ISP.**
A: Internet Service Provider

OR

What is a Trojan Virus?

A: A Trojan horse or Trojan is a type of malware that is often disguised as legitimate software. Trojanscan be employed by cyber-thieves and hackers trying to gain access to users' systems. Users are typically tricked by some form of social engineering into loading and executing Trojans on their systems.

vi) **Name any two WAN protocols.**

A: SONET/SDH, X.25, PPP

vii) **What is the main use of URL?**

A: The URL contains the name of the protocol to be used to access the resource and a resource name. The first part of a URL identifies what protocol to use. The secondpart identifies the IP address or domain name where the resource is located. A URL is the most common type of Uniform Resource Identifier (URI).

viii) **What is Class B IP Address ?**

A: where the 1st two bits are 10, are in the range of 128.0.0.0 to 191.255.255.255. This class is for medium networks and has 16 bits for network and 16 bits for hosts.

OR

What is Class C IP Address ?

A: where the 1st three bits are 110, are in the range of 192.0.0.0 to 223.255.255.255. This class is for smaller networks and has 24 bits for network and 8 bits for hosts.

ix) **State one disadvantage of using Star Topology.**

A: Requires more cable length than a linear **topology**. If the hub, switch, or concentrator fails, nodes attached are disabled. More expensive than linear bus **topologies** because of the cost of the hubs, etc.

OR

State one disadvantage of using Mesh Topology.

A: The cost to implement is higher than other network topologies, making it a less desirable option. Building and maintaining the topology is difficult and time consuming. The chance of redundant connections is high, which adds to the high costs and potential for reduced efficiency.

x) **What is client server computation?**

A: In client/server computing, a server takes requests from client computers and shares its resources, applications and/or data with one or more client computers on the network, and a client is a computing device that initiates contact with a server in order to make use of a shareable resource.

OR

What is peer – to – peer network?

A: Peer-to-peer computing or networking is a distributed application architecture that partitions tasks or workloads between peers. Peers are equally privileged, equipotent participants in the application. They are said to form a peer-to-peer network of nodes.

xi) **Write the expanded output expression for a XOR operation with the inputs A & B.**

A: $\bar{A}B + A\bar{B}$

OR

How many NAND gates are required to design a XOR gate.

A: 4(four)

xii) **What do you mean by a container tag in HTML?**

A: In HTML, the container is the area enclosed by the beginning and ending tags. For example < HTML > encloses an entire document while other tags may enclose a single word, paragraph, or other elements. In HTML code, all container must have a start and stop tag to close the container

OR

What do you mean by an empty tag in HTML?

A: HTML elements with no content are called emptyelements.
 is an empty element without a closingtag (the
 tag defines a line break).

xiii) **What is the function of an Encoder circuit?**

A: The purpose of encoder is standardization, speed, secrecy, security, or saving space by shrinking size. Encoders are combinational logic circuits and they are exactly opposite of decoders. They accept one or more inputs and generate a multibit output code. Encoders perform exactly reverse operation than decoder.

OR

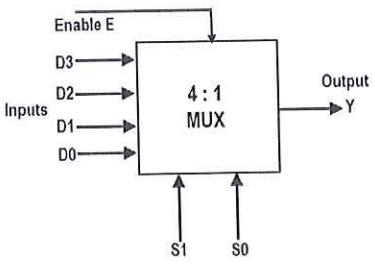
State the use of a Decoder circuit.

A: In digital electronics, a binary decoder is a combinational logic circuit that converts binary information from the n coded inputs to a maximum of 2n unique outputs. They are used in a wide variety of applications, including data demultiplexing, seven segment displays, and memory address decoding.

xiv) **Draw the truth table and block diagram of 4X1 Multiplexer.**

A:

Select Data Inputs		Output
S_1	S_0	Y
0	0	D_0
0	1	D_1
1	0	D_2
1	1	D_3

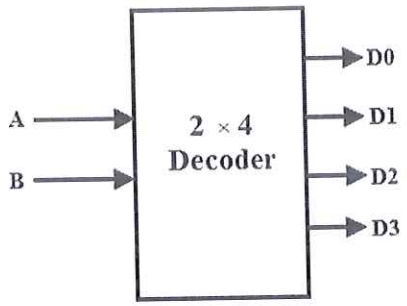


OR

Draw the truth table and block diagram of 2 to 4 Decoder

A:

A_1	A_0	D_3	D_2	D_1	D_0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0

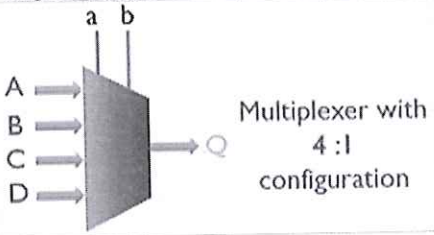
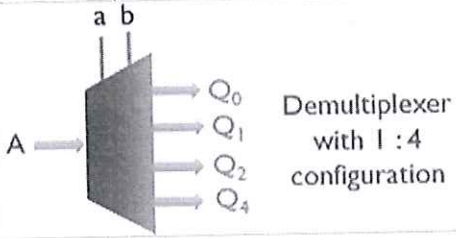


GROUP – B

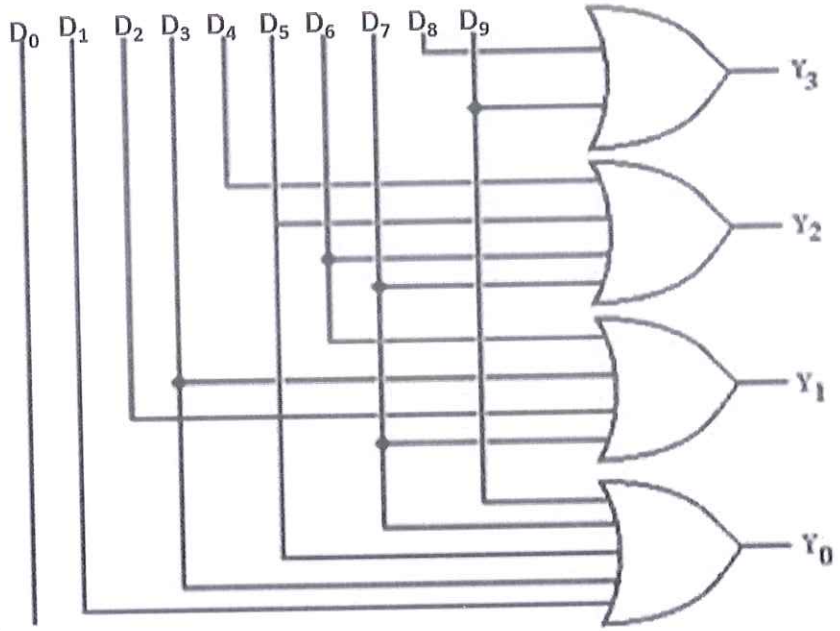
3. Answer the following questions (Alternatives are to be noted): **7X5 = 35**

i) (a) State two differences between a Multiplexer & a Demultiplexer.

A:

PARAMETER	MULTIPLEXER	DEMULTIPLEXER
Definition	A multiplexer is a combinational circuit that provides single output but accepts multiple data inputs.	A demultiplexer is a combinational circuit that takes single but that input can be directed through multiple outputs.
Symbol		
Number of data inputs	Multiple	Single
Number of data output	Single	Multiple
Conversion technique	It performs parallel to serial conversion.	It performs serial to parallel conversion.
Device configuration	It is N to 1 device and thus behaves as data selector.	It is 1 to N device and thus behaves as data distributor.

(b) Draw the circuit diagram of a decimal to binary encoder.



A:

(c) How can you convert a Demultiplexer to a decoder?

A:

2+4+1

OR

(a) How many Half Adders are required for a Full Adder?

A: 2

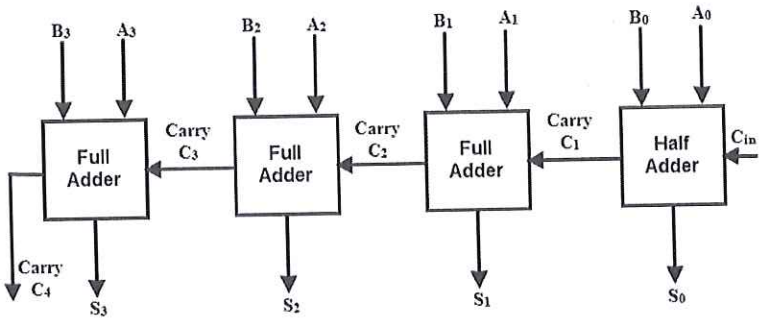
(b) What is the expression for the Sum and Carry outputs of a Full Adder circuit.

A: Sum = X ⊕ Y ⊕ C_{in}

Carry = (X ⊕ Y)C_{in} + XY

(c) Draw the block diagram of a 4-bit Adder circuit. **1+2+4**

A:



ii) (a) State two differences between <OL> and <UL> tags.

- **Ordered list**
  - The ordered list element's <OL> and </OL> tags are used to create ordered lists.
  - The different values for TYPE attribute is as under:
  - TYPE="1" (Arabic Numbers)
  - TYPE="a" (Lowercase alphanumeric)
  - TYPE="A" (Uppercase alphanumeric)
  - TYPE="i" (Lowercase Roman numbers)
  - TYPE="I" (Uppercase Roman numbers)
- **Unordered List**
  - The unordered list element's <UL> and </UL> tags are used to create unordered lists.
  - The different values for TYPE attribute is as under:
  - TYPE="CIRCLE"
  - TYPE="DISC"
  - TYPE="SQUARE"

A:

(b) Show how you can create a link between two pages in HTML.

(c) Write a code in HTML to insert an image "picture.jpg" in a webpage.

A: <img src = "picture.jpg">

2+4+1

OR

Identify the errors & write the corrected HTML Statements:

(a) <BODY BACKGROUND = "Blue"> ....BGCOLOR

(b) <FONT TYPE = "Arial"> ...STYLE

(c) <H1 = "centre"> This is heading </H1> .... No parameters required for <H1>

(d) <A SRC = "abc.html"> **.....imgsrc**

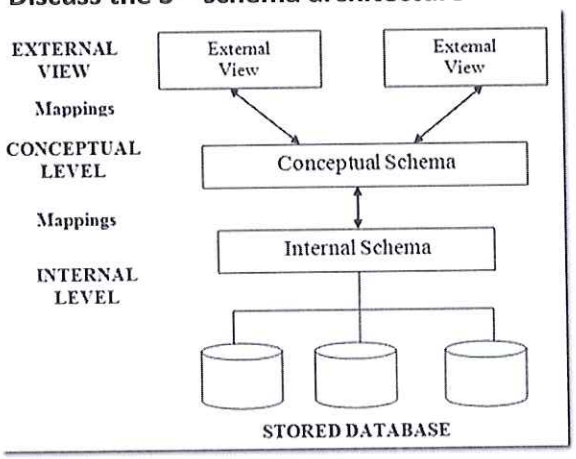
(e) <OL> 1. Book .....<OL> <LI> Book</LI> <LI> Pencil </LI> </OL>
<OL> 2. Pencil

(f) <HEAD> My Class</HEAD> ..... It should be written within TITLE tag

**(g)
 </BR>** ....No need to close
 tag

(1X7)

iii) (a) Discuss the 3 – schema architecture



A:

(b) Which thing is represented by a rectangle in an ER diagram?

A: Entity

(2X3)+1

OR

Consider the following tables:
OFFICER (EmpID, Name, Salary, DeptID, Phone)
DEPARTMENT (DeptID, Name, Strength, Budget)

(a) Write an SQL query to display the names of officers which are 7 letters long and starts with 'Su' .

A: SELECT Name
FROM OFFICER
WHERE Name LIKE 'Su_ _ _ _ _';

(b) Display the name of officers & their department IDs who have salaries more than Rs.60,000.

A: SELECT Name, DeptID
FROM OFFICER
WHERE Salary > 60000;

(c) Display the department names where more than 25 employees are working & whose annual budget is more than or equal to Rs.2,00,000,00

A: SELECT Name
FROM DEPARTMENT
WHERE Strength > 25
AND Budget > = 20000000;

2+2+3

iv) (a) Write the steps to apply conditional formatting to a range of cells in Excel.

(b) Discuss the different types of cell references in Excel.

A: Discuss briefly about Relative, Absolute & Mixed References.

4+3

OR

(a) What is the use of a chart in Excel?

A: A chart is a graphical representation of data to analyze large quantities of data in a visual form

(b) Write the steps to insert a pie chart in an Excel worksheet.

A: 1. Select the range of cells containing data and the data labels
2. Select the Insert Tab
3. Select the Pie option from the charts group
4. Select any one of the pie-chart option from the dropdown list that appears.
5. A pie chart with the selected data will be formed.

(c) State one difference between a pie chart and a doughnut chart

A: A doughnut chart is generally used to display data as part of a whole foe more than one data series, unlike a pie chart which displays data for a single series.

(d) What type of cell reference is indicated by $\$A\$4$?

A: Absolute Reference

1+4+1+1

v) **(a) Write the steps in MS – Access to generate a form and a query**

A: Open MS Access → All tables navigation pane → select table name → create tab → forms group → form tool → change layout if required → save form

Open MS Access → Create tab → other group → query wizard option → new query dialogue box → simple query wizard → dialogue box opens → select table and fields from tables/queries dropdown list → select details option to view every field of every records → enter Name of query → Finish to end process

(b) Write the steps in MS – Access to add a new field in a table, to add a new record in a table & to delete a record from a table

A:

add a new field

1. **Create** or open a **table** in Datasheet view by right-clicking the **table** that you want in the Navigation Pane and then clicking Datasheet view from the shortcut menu.
2. In the **Add New Field column**, enter the name of the **field** that you want to **create**. ...
3. Enter data in the **new field**.

#add a new record

1. To **add records to** a **table** in datasheet view, open the desired **table** in datasheet view.
2. Click the "**New Record**" button at the right end of the **record** navigation button group.
3. Then enter the information into the fields in the "**New Record**" **row**.

delete a record

1. In Datasheet view, open, the table or query that contains the data that you want to delete.
2. Locate the record (the row) that you want to delete, and then click the Select All button — the square located at the left or right end of the record. ...
3. Press DELETE.

(2X2) + (1+1+1)

OR

(a) What type of software is MS- Access?

A: MS – Access is an application program that helps us to create and manage a database. It is a Relational Database Management System or RDBMS.

(b) Write the steps to create a table using Datasheet view in MS – Access.

A: 1. Click Table on the Ribbon (from the Create tab).
A blank table will appear.
2. Click Click to Add to add a new field.
Select a data type from the contextual menu that expands when you click.
3. Once you've selected a data type, Access highlights the column header so that you can name the field. Enter a name for the field. Repeat steps 2 and 3 for as many fields that you need to add.
4. When you create a new table, Access automatically adds a new field called ID with a data type of AutoNumber.
5. Once you've set up the table, you should save it. To save the table, right-click on the table's tab and select Save.
6. Enter a name for the table and click OK.
7. The table is now added to the list of tables in the left Navigation Pane.

(c) Write the names of any two data types along with an example for each as used in an Access table. **1+4+2**

A: 1. Text – St. Lawrence High School
2. Number - 124

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