



Second Semester Examination -July 2021

Subject : Information and Communication Technology - II

Class : 9 (National)

80	E	II
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Duration : 2 hours (Additional Reading Time 10 minutes) Date :

Candidate's name : Admission no :

Answer five questions only, selecting the first question and four others.

1. (i)

	A		B
1 is data that has been given a meaning or context.	A	Input
2	These are raw facts, figures, values or instructions with no specific meaning by themselves.	B	Information
3	This is the stage where data or instructions are put into a computer system.	C	Output
4	This is processed information that comes out of a computer system.	D	Data

(ii) Identify the storage devices given below named A, B, C and D.



A



B



C



D

(iii) A computer has 2048 MB of RAM. How many GB of RAM does the computer have? Show your workings.

(iv) a) Show the Most Significant Digit (MSD) and the Least Significant Digit (LSD) of the number 0.0897

b) Convert the value 475_{10} into Octal number system.

(v) Pick the most suitable words for A-D from the list given below.

(fragmentation, formatting, defragmentation, partitioning)

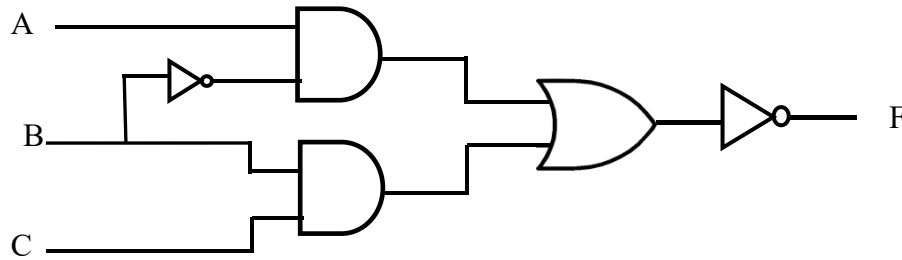
a) When storing a file in a secondary storage device, parts of the saved file getting scattered across is called(A).....

b) Logically dividing a hard disk into some parts is known as(B).....

c) Preparing a storage device into a form where it is capable of storing data is called(C).....

d)(D)..... is the process of rearranging the scattered parts of files saved in a secondary storage device.

- (vi) (a) Write the Boolean expression for the output of the following logic circuit.



- (b) Draw the correct truth table for the above expression.
- (vii) RAM and ROM are both types of memory used by personal computers.
- (a) Which one of these types of memory is volatile?
- (b) Why does a personal computer need both of these types of memory?
- (viii) Shamin uses a digital camera with wireless capability to take photographs of the birds. He wants to print the photographs. Identify **two** types of wireless connections he could use to send the images from his camera to a wireless printer.
- (ix) Identify the following icons used in a word processing software.
(Font Colour, Bullets, Center Align, Highlighter)



A B C D

- (x) a) What are the **three** types of relationships available in a database application?
- b) Write **two** field names with relevant data types, that you would find in an Item table of a supermarket's database.

[Total = 2 × 10 = 20 marks]

02. (i) Nuwan gave his bank account number to the officer at the counter and said he wanted to check the balance of his account. The officer entered the account number into the computer system, checked and verified the account and informed the available balance to Nuwan.

Write down the inputs, processes and outputs involved in the above scenario.

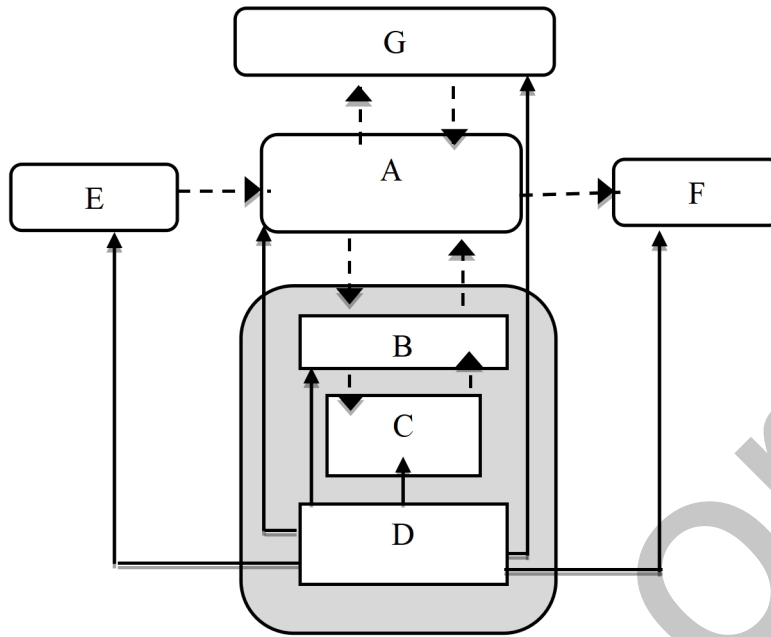
(3 marks)

- (ii) Match column A with column B.

A		B	
1	Government to Citizens (G2C)	A	Loan facility information
2	Government to Government (G2G)	B	Business registrations
3	Government to Business (G2B)	C	Renewal of vehicle license
4	Government to Employees (G2E)	D	Aid for tourists

(2 marks)

- (iii) Study the following picture about the internal functions a computer system and answer the questions given below.



- (a) Name the labels A, B, C, D, E, F and G.

(3 marks)

- (b) Which label is used to represent non-volatile memory?

(1 mark)

- (c) Write **two** examples each, for E and F.

(1 marks)

[Total = 10 marks]

3. (i) (a) Convert the following values to binary.

(I) CB_{16}

(II) 258_{10}

(2 marks)

- (b) Convert the following values to hexadecimal.

(I) 725_8

(II) 178_{10}

(2 marks)

- (c) Write the BCD value of 59.

(1 mark)

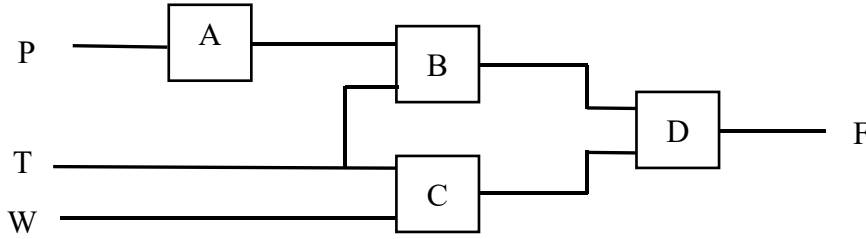
- (ii) The following image shows a circuit diagram designed for an alarm system to be used in a chemical research center.

The alarm is triggered:

- when carbon dioxide is emitted and the temperature is below 330 C°
or
- when the temperature is below 330 C° and water pressure is above 100 psi.

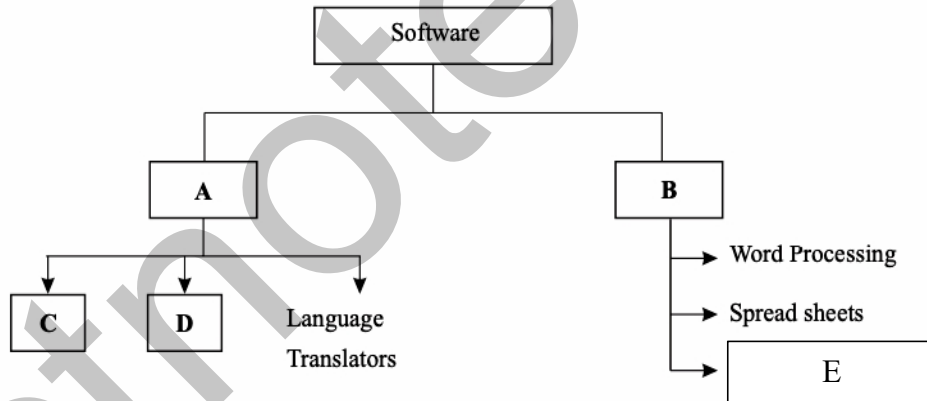
The alarm inputs work as follows:

- P is 0 when carbon dioxide is emitted. 1 otherwise.
- T is 1 when temperature < 330 C°. 0 otherwise.
- W is 1 when water pressure >100 psi. 0 otherwise.



- (a) What are the suitable logic gates for A, B, C, and D? *(2 marks)*
- (b) Write the correct Boolean expression for the above logic circuit. *(1 mark)*
- (c) Re-draw the circuit using the correct logic gates you identified in the above question (a). *(2 marks)*
- [Total = 10 marks]**

4. (i) The diagram below shows the classification of software. Identify the sections named A, B, C, D and E.



- (ii) Write the types of operating system management that handle the given tasks. *(2 marks)*

	Task	Type of management
1	Manages and saves the details regarding a computer processes
2	Stores and manages data/information on the computer's memory devices
3	Helps protecting the computer from hackers/unauthorized access
4	Manages details of the computer's input output devices.

(2 marks)

(iii) Smart phones use touch screen technology that requires a Graphical User Interface (GUI). Write **two** advantages of having a GUI on a smart phone rather than having a Command Line Interface (CLI).

(2 marks)

(iv) A school with 20 standalone PCs is considering networking them and to add a file server.

(a) Write **two** possible benefits of doing this.

(2 marks)

(b) Name a device that can be used to connect the computers together in a Local Area Network.

(1 mark)

(c) Write **two** methods of preventing unauthorized access to the school's network.

(1 mark)

[Total = 10 marks]

5. (i) Following is a letter prepared by Zonal ICT center to inform all the principals of the zone about a support seminar for G.C.E. (O/L) students of 2019.

Computer Resource Center,
Vaunia Road,
Kebithigollewa.
15th September 2016.

The Principal,
Sri Sobitha Maha Vidyalaya,
Kadawathgama,

Seminar on ICT for Grade 11 Students

We are pleased inform you that we have organized a seminar for the grade 11 students on the 25th September 2016 at 8.30 a.m. to 5.00 p.m. at the Computer Resource Center, Kebithigollewa for the following topics.

- Computer Hardware
- Electronic Presentations
- Word Processing
- Electronic Spreadsheet
- Database

If you are you interested in attending the above seminar please be kind enough to inform us on or before 25th September 2016.
Thank you.
Center Manager.

(a) Name **two** alignments used in preparing this letter.

(2 marks)

(b) Write **three** tools that can be used to format the topic of the letter.

(3 marks)

(c) The typesetter has mistakenly typed "September" instead of "October". What is the tool that can be used to correct it throughout the letter at once?

(1 mark)

(d) What is the tool that can be used to automatically add names and addresses from a database to letters and envelopes, to facilitate sending personalized mail to all the schools in the zone?

(1 mark)

(e) When proof reading, the manager noticed few words underlined in red squiggles and he was able to fix those words easily. What is this facility given by word processing software to indicate and correct mistakes?

(1 mark)

- (ii) (a) Write **two** important points in making a quality multimedia presentation.
 (b) Give **two** types of multimedia files which can be embedded to an E – Presentation.

(2 marks)

[Total = 10 marks]

06. A student plans to enter information of some purchased goods into a spreadsheet. The student also wants to prepare a bill.

Answer the following questions with the help of the given spreadsheet.

	A	B	C	D	E	F	G
1				DISCOUNT	5%		
2	Item Number	Name	Quantity	Unit price	total value	discount	net value
3	1	CR BOOKS	52	Rs. 75.00			
4	2	PENCILS	50	Rs. 15.00			
5	3	PEN	45	Rs. 20.50			
6	4	NOTE BOOKS	30	Rs. 43.50			
7	5	COLOUR BOX	20	Rs. 62.00			
8	6	A4 SHEET	200	Rs. 2.00			
9	7	ERASER	10	Rs. 15.00			
10	8	RULLER	10	Rs. 25.00			
11	9	MARKER PEN	35	Rs. 80.00			
12	10	DRAWING BOOKS	30	Rs. 72.00			
13							
14							

- (i) What is the formula to be written in cell E3 to calculate the **total value** of CR BOOKS?
 (2 marks)
- (ii) Write the steps required to find the **total value** of other goods by copying the above formula.
 (2 marks)
- (iii) The **discount** given in cell E1 is given based on the total value. Write the formula to use in cell F3 to calculate the **total discount** for CR BOOKS. (The discounts of other goods should also be calculated by copying the formula downwards. The values in the discount column should get changed automatically if the value of cell E1 is changed).
 (2 marks)
- (iv) Write the formula you should use to calculate the **net value** to be paid for each good in cell G3.
 (2 marks)
- (v) Write the formula to use in cell G13 to calculate the **total net value** to be paid for all purchased goods.

(2 marks)

[Total = 10 marks]

07. 'Open Sale' company provides facilities for their customers to order and purchase goods online. Following are some table data extracted from the company's database. There are relationships established among these tables.

Customers		
Customer number	Name	Contact No
101	A.R. Perera	0771586954
102	K.P. Kumari	0785487521
103	J.A. Kamalani	0717748542

Distribution officer	
Distribution_officer_No	Name
Dis_10	R. Kurera
Dis_11	M. Mohomed
Dis_12	A. Surendra

Orders			
Order_No	Order	Customer number	Distribution_officer No
A1002	B9x Digital watch	101	Dis_10
A1005	A3S Mobile Phone	102	Dis_10
A1007	PxJ Printer	103	Dis_11
A1008	J7P Hard Disk	103	Dis_12

- (i) (a) Mention **two** primary keys with their corresponding table names.
 (b) Why primary key is important in a relationship? *(2 marks)*
- (ii) A foreign key is used to create relationships among tables. Define what a foreign key is. Give an example for a foreign key in the above database. *(2 marks)*
- (iii) The customer 'Tharaka Silva' who is having Customer_number 104 and Contact_No 077 2050657, has ordered 'IG keyboard' under Order_No A1009. This is distributed by R. Kurera. Answer the below questions according to this incident. (Mention the new records only.)
 (a) Mention the table/tables which needs to be updated.
 (b) Update the table/tables with new data. *(3 marks)*
- (iv) There are three types of relationships in databases. State what type of relationship exists between Customers table and Orders table. Give reasons. *(1 mark)*
- (v) Before relational databases were invented, people used one flat table to store data. Therefore, the data duplication was high. Write **two** disadvantages of having duplicated data. *(2 marks)*

(2 marks)
[Total = 10 marks]

END

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