

குறியீடு } 11  
தரம் }  
Grade }

பொருள் }  
பாடம் } Information and Communication Technology  
Subject }

பகுதி } I, II  
வினாத்தாள் }  
Paper }

காலம் } 03  
காலம் }  
Time }

தலை :- .....

### Information and Communication Technology I

#### Note:

- \* Answer all question.
- \* In each of the questions 1 to 40, pick one of the alternatives (1),(2),(3),(4) which is correct or most appropriate.
- \* Mark a cross (x) on the number corresponding to your choice in the answer sheet provided.

1. The main hardware technology of the first generation computers was ..... and ..... were used for data input, storage and output.

Here are the appropriate terms for the above spaces respectively are,

- (1) Transistor, Floppy Disk (2) Vacuum Tubes, Key Board  
(3) IC, Key Board (4) Vacuum Tubes, Punch Cards

2. Which of the following statements best defines data and information?

- (1) Data is meaningful and information is not meaningful.  
(2) Both data and information help to make decisions.  
(3) Taking the NIC number as data, it is possible to obtain information from the analysis.  
(4) Everything that is not data is information.

3. The number of pages, the number of words, used Language, view buttons, etc. are shown in a document prepared by word processing software in the,

- (1) Title Bar (2) Status Bar  
(3) Quick Access Tool Bar (4) Scroll Bar

- Refer the given diagram to answer questions 4 and 5.

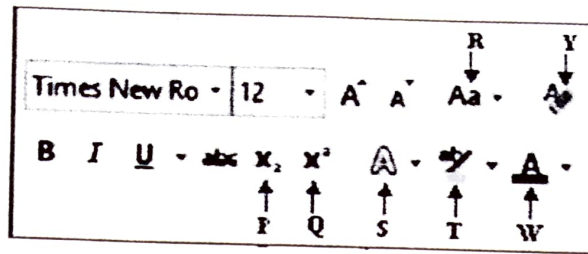


Figure 01

- Which of the above labels are used to process the words 3<sup>rd</sup> and H<sub>2</sub>O respectively?  
 (1) Q, P (2) S, T (3) R, Y (4) Q, S
- Which of the above tool is used to color the letters.  
 (1) S (2) W (3) T (4) Y
- The octal equivalent to the binary number 10110100<sub>2</sub> is,  
 (1) 554<sub>8</sub> (2) 264<sub>8</sub> (3) 164<sub>8</sub> (4) 134<sub>8</sub>
- Select the equivalent value of 100<sub>10</sub>,  
 A. 01100100<sub>2</sub> B. 144<sub>8</sub> C. 64<sub>16</sub>  
 (1) A only (2) A and B only (3) B and C only (4) A, B, C all
- The BCD value of 604 is,  
 (1) 011000000100<sub>2</sub> (2) 00110100<sub>2</sub> (3) 110000100<sub>2</sub> (4) 101000100<sub>2</sub>

- Select the Logic Gate/s which represent only NOT concept,



- (1) A only (2) A and B only (3) A and C only (4) A, B, C all

- Select the correct Logic gate which is represented in the truth Table,

A	B	F
0	0	1
0	1	1
1	0	1
1	1	0

- (1) AND (2) OR (3) NAND (4) NOR

11. Two men went to a shop for breakfast and the food selection went like this. The Dhal curry (C) and coconut Sambal (D) had to be selected with the String hoppers (A) or Bread (B). Which of the following Boolean expressions correctly represents this phenomenon?

- (1) (A OR B) AND (C OR D)                      (2) (A AND B) OR (C AND D)  
 (3) (A OR B) AND (C AND D)                      (4) (A OR B) OR (C AND D)

• Use the spreadsheet below to answer the questions 12 and 13.

	A	B	C	D
1				
2	5	10	50	
3		20	100	
4		30	150	
5				
6				

12. When the value in cell A2 is multiplied by the value in cell B2 result must be shown in cell C2. This formula to be written in cell C2 is, (this should give the correct answer when copied from C2 to C4 too.)

- (1) =A2\*B2                      (2) =\$A2\*B2                      (3) =A\$2\*B2                      (4) =A\$2\*B\$2

13. Select the formula/s which is used to count the cells which include the values.,

- A =COUNT(A2:C4)  
 B =COUNT(A2, B2:B4,C2:C4)  
 C =SUM(A2:C4)

- (1) A only                      (2) B only                      (3) A and C only                      (4) A and B only

14.

	A	B	C	D	E	F
1	<b>Name</b>	<b>Pasan Bandara</b>				
2	<b>Subject</b>	<b>Sinhala</b>	<b>English</b>	<b>Maths</b>	<b>History</b>	<b>Total</b>
3	<b>Marks</b>	78	ab	85	67	

According to the spreadsheet above, select the formula/s to calculate the total of Pasan's marks:

- A =SUM(B3:E3)  
 B =B3+C3+D3+E3  
 C =SUM(B3+D3+E3)

- (1) A only                      (2) A and B only                      (3) A and C only                      (4) A, B and C only

Question numbers 15 to 17 are based on the following Book table.

Table: Book

ISBN	Title	NumPages	Price
2342	Digital Design	245	200
2540	E Commerce	110	400
2367	Web Design	455	500
1345	E Commerce	782	150
2343	Networking	643	275

15. What are the most suitable data types for ISBN, NumPages and Title fields respectively?  
 (1) Text, Text, Text (2) Number, Text, Number  
 (3) Number, Text, Text (4) Text, Number, Text
16. The Primary key of the Book Table is,  
 (1) Title (2) Price (3) ISBN (4) NumPage
17. There are ..... number of fields in Book Table.  
 (1) 5 (2) 3 (3) 4 (4) 6
18. Select the **true** statements given below.  
 A. It is necessary to have a primary key in each table.  
 B. Primary key may be NULL, but the same value cannot be used multiple times.  
 C. Data type of the Primary key should not be Number type.  
 (1) A only (2) A and B only. (3) A and C only. (4) A,B and C all.
19. Select the **correct** statement/s regarding presentation software,  
 A. Should include more details in a slide.  
 B. Used to conduct electronic presentations in seminars over the Internet too.  
 C. There should be a minimum of 10 slides in each presentation.  
 (1) A only. (2) A and C only. (3) B only. (4) None of the above.
20. Which is the shortcut key used to initiate electronic presentation?  
 (1) F2 (2) F6 (3) F9 (4) F5
21. A network is called a Star Topology if,  
 (1) Each Computers are inter-linked with multiple cables.  
 (2) All computers are attached to a central device.  
 (3) All computers are attached to a single cable.  
 (4) Computers are arranged in a closed group.

22. Select the **incorrect** statement/s

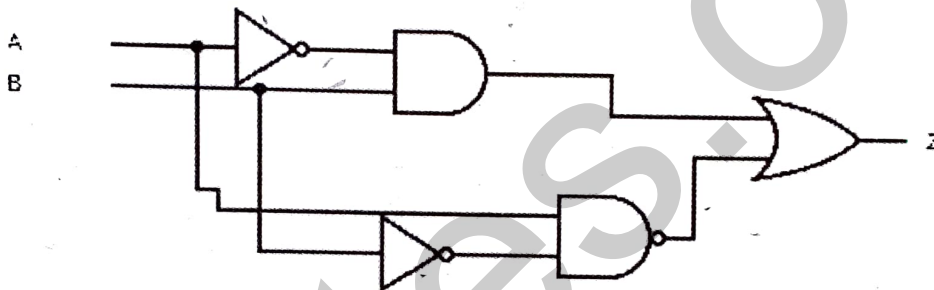
- A. An operating system is a type of software that fulfills user needs;
- B. The operating system provides hardware control as well as user interfaces.
- C. Having an operating system is mandatory for every computer.

- (1) A only                      (2) A and B only.                      (3) A and C only.                      (4) A, B and C all.

23. Select the **true** statement/s,

- (1) The operating system does not manage processes.
- (2) Providing user interfaces is not a primary function of an operating system.
- (3) The memory management of the computer is performed by the operating system.
- (4) It is better to install a separate application software on the computer for file management.

24. What is the Boolean expression equal to the output of a given logic circuit?



- (1)  $Z = (\bar{A} + B) \cdot (\overline{A + B})$                       (2)  $Z = (\bar{A} \cdot B) + (\overline{A \cdot B})$   
 (3)  $Z = (\bar{A} \cdot B) + (\bar{A} \cdot \bar{B})$                       (4)  $Z = (\bar{A} + B) + (\overline{A + B})$

25. Which of the following is a valid variable name in Pascal language?

- (1) downto                      (2) 9\_average                      (3) maximum@                      (4) stu\_name2

26. Which of the following answers represents the correct outputs of the given Pascal formulas respectively?

$$5 + 7 \text{ DIV } 2 - 8 / 2$$

$$6 \text{ MOD } 5 * 4 - 9$$

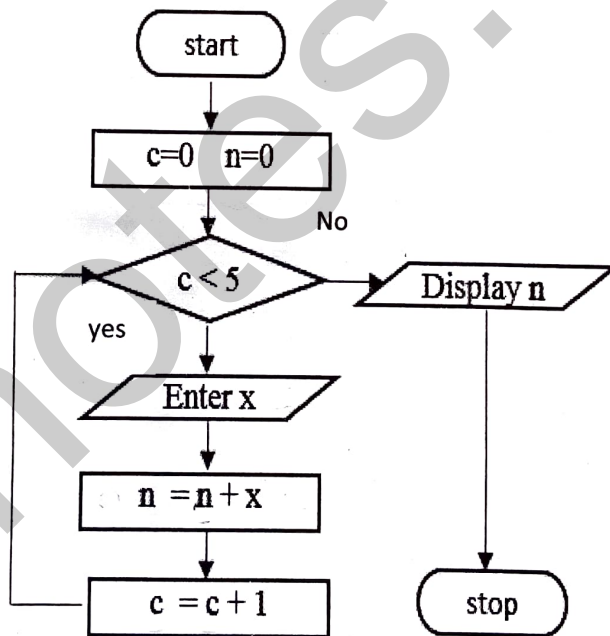
- (1) 4.0 and -5                      (2) -1.0 and -5                      (3) -5 and 4.0                      (4) 2.0 and 1

27. What is the output of the following pseudo code?

```
N=50
If N > 100 then
    Result = 1
Else
    If N > 50 then
        Result = 2
    Else
        Result = 3
    End if
End if
Print Result
```

- (1) 1                      (2) 2                      (3) 3                      (4) 50

28. What is the output of the flow chart shown below, when 12, 5, 7, 9, 10, 16, 8 are given for x?



- (1) 33                      (2) 43                      (3) 59                      (4) 67

29. How often do the "#" and "\$" symbols appear when the following pseudo-code is activated?

```
Begin
A= 4
Repeat
  B= A MOD 2
  C= A DIV 2
  If B = 0 OR C=3 then
    Display ('#')
  Else
    Display ('$')
  End if
  A= A+1
Until A>10
End
```

- (1) The "#" symbol is 2 times and the "\$" symbol is 2 times
- (2) The "#" symbol is 3 times and the "\$" symbol is 5 times
- (3) The "#" symbol is 4 times and the "\$" symbol is 3 times
- (4) The "#" symbol is 5 times and the "\$" symbol is 2 times

30. Consider the following statements regarding a computer-based information system.

- A. Errors are minimized.
- B. It takes longer to process information.
- C. Provides more security for data compared to.

Out of the above statements the correct statement /s is/are,

- (1) A only
- (2) A and B
- (3) A and C
- (4) A, B, C

31. The Divisional Secretary intends to set up an online system for the public library and provide library services. The most suitable system development model to use for this is,

- (1) The waterfall model.
- (2) The Iterative Incremental model.
- (3) The prototype model.
- (4) The spiral model.

32. Select the correct output in a browser according to HTML code segment given below.

```
<table border="1">
<tr> <th colspan="2">Details</th></tr>
<tr><th>Name</th><th>Age</th></tr>
<tr><td>Nimal Gunawardhana</td> <td>17</td></tr>
<tr><td>Saman Perera</td><td>18</td>
</tr>
</table>
```

(1)

<b>details</b>	
<b>Name</b>	<b>Age</b>
Nimal Gunawardhana	17
Saman Perera	18

(2)

<b>Name</b>	<b>Age</b>
Nimal Gunawardhana	17
Saman Perera	18
<b>Details</b>	

(3)

<b>Details</b>	
<b>Name</b>	<b>Age</b>
Nimal Gunawardhana	17
Saman Perera	18

(4)

Details	
<b>Name</b>	<b>Age</b>
Nimal Gunawardhana	
17	
Saman Perera	18

33. The following HTML code is used to insert an image. What is the appropriate attribute for the space?

```

```

(1) href

(2) ALT

(3) alter

(4) name



34. Select the correct output according to the given HTML segment bellow.

```
<dl>
<dt>CAD</dt>
<dd>computer-aided design</dd>
<dt>CAM</dt>
<dd>computer-aided manufacturing</dd>
</dl>
```

(1)

CAD  
- computer-aided design  
CAM  
- computer-aided manufacturing

(2)

CAD  
computer-aided design  
CAM  
computer-aided manufacturing

(3)

CAD  
- computer-aided design  
CAM  
- computer-aided manufacturing

(4)

CAD  
computer-aided design  
CAM  
computer-aided manufacturing

35. The following HTML code is used to display the background color of a web page.

What is the **correct** code segment here?

- (1) <bodybackgroundcolor="#ff0055">
- (2) <bgcolor="#ff0055">
- (3) <body bgcolor="#ff0055">
- (4) <page bgcolor="blue">

36. Select the **correct** statement corresponding to the given HTML code segment bellow.

- A. <h1 align="center">Computer </h1>
- B. <h1></center>Computer <center></h1>

- 1) From the codes A and B, the word computer is the Center Alignment
- 2) From the A codes only, the word computer is the Center Alignment
- 3) From B codes only, the word computer is the Center Alignment
- 4) From the codes A and B, the word computer is not Center Alignment



ශ්‍රේණිය } ප්‍රම } Grade } 11	විෂය } ආධ. } Subject } Information & Communication Technology	පත්‍රය } විඛාත. } Paper }	කාලය } කාලය } Time }
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**Information and Communication Technology II**

**Note:** Answer five questions only, selecting the first question and four others.  
 First question carries 20 marks and each of the other questions carries 10 marks.

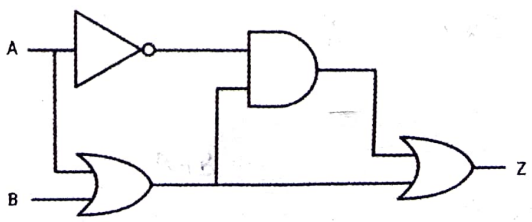
(01)

- E-government is very important for a country. What is e-government. Briefly explain G2C with one example.
- Convert the Hexadecimal number 50F9 to an octal number. Show the major steps of your calculation.
- Consider the following two incomplete statements:
  - ...**A**..... computers have higher computing power and they are large in size, expensive and rare.
  - ...**B**..... computers are use ...**B**..... signals such as environmental Parameters (speed, Pressure and Temperature)

Identify the matching term for each of the labels **A** and **B** from the list of terms given below.  
 Write down the label and the matching term in the label → term format.

**List of terms: {mainframe, micro, supper, Digital, Analog}**

- Draw the truth table for the logic circuit given below.



5. Hard Disk is made of several components. Find the correct functionality of each component. Write down the label and the matching functionality in the label → term number format.

	Hard Disk Component		Functionality
(a)	Spindle	1	Transmits data to the platter
(b)	Actuator arm	2	An electronic device which moves the arm connected to it.
(c)	IDE connector	3	Holds the platter and rotates it.
(d)	Actuator	4	Moves the head.

6. Find the data storage capacity given bellow, when  $2^{10}$  Bytes = 1KB

$$2^{\boxed{x}} \text{ Bytes} = 1\text{GB}$$

$$2^{\boxed{y}} \text{ Bytes} = 1\text{TB}$$

7. Compare the statements in the first column below with the related terms in the second column and place the corresponding term number (1-4) in front of the relevant label(A-D) of the statement.

First Column	Second Column
A. Converts IP addresses to domain name	1. Web Server
B. Store web pages and provide them to client computers	2. Mail Server
C. Store emails and deliver them to client computers	3. FTP
D. The protocol which is used to transfer file.	4. DNS Server

8. Segment of a word-processed text document is shown below with some formatting done.

Bambarakanda Falls ← 1 2 3 4

**Bambarakanda Falls** (also known as **Bambarakele Falls**) is the tallest waterfall in Sri Lanka. With a height of 263 m ( $8.63 \times 10^3$  ft), it ranks as the 461st highest waterfall in the world. Situated in Kalupahana in the Badulla District, this waterfall is 5 km away from the A4 Highway. The waterfall was formed by Kuda Oya, which is a tributary of the Walawe River. The Bambarakanda Falls can be found in a forest of pine trees.

More details: [https://en.wikipedia.org/wiki/Bambarakanda\\_Falls](https://en.wikipedia.org/wiki/Bambarakanda_Falls)

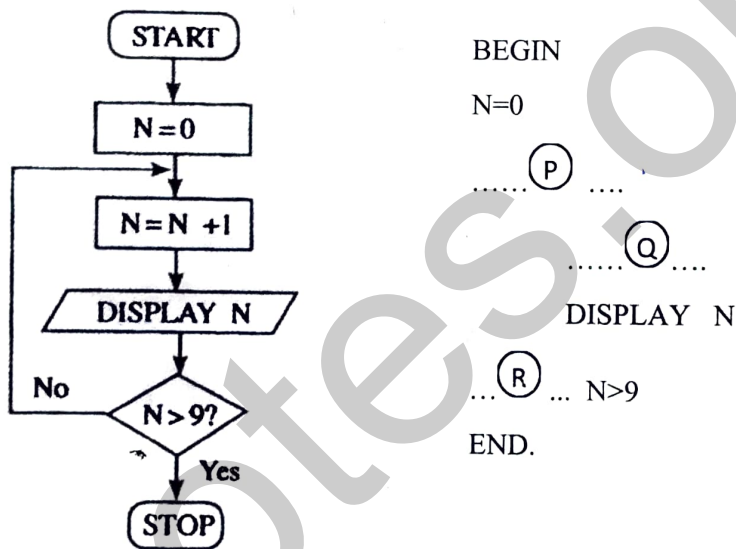
Icon of the formatting tool							
Icon label	(P)	(Q)	(R)	(S)	(T)	(U)	(V)

Identify the icons of formatting tools, indicated by the labels (P) (V) which are required to do the formatting tasks indicated by the labels from (1) to (4). Write down the label of each formatting task (1)-(4) and its matching icon label of the formatting tool.

9. The pseudo-code associated with the flow chart below is shown with spaces.
- a. In front of the label (P) to (R) corresponding to the blank code, select the correct answer from the list .

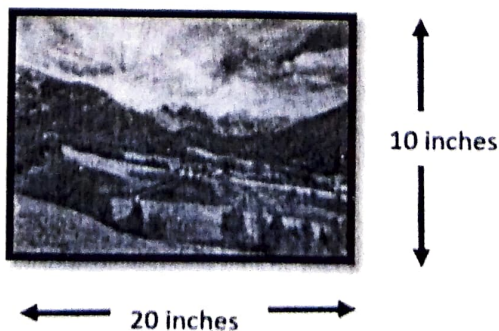
List-[DO, WHILE, REPEAT, UNTIL, FOR , NEXT, N=0, N=N+1, N<9]

- b. Write down the **output** of the algorithm.



10. Answer the questions asked regarding digital graphics.

- (a) If the number of colors in a pixel is 128, what is the number of bits in one pixel?
- (b) Find the resolution of the graphic given bellow in megapixels (MP) or pixels when the ppi value as 20.  
(ppi - pixels per inch)



(02)

(a) Consider the example web page in Figure 2, which is created using the source code shown in Figure 1. Fill in the blanks 1 to 10 in the source code using the HTML tags given below.

Write only the label number and the corresponding HTML tag.

Center, Src , Href , Li , Alt , Title , Ol , Hr , U , head

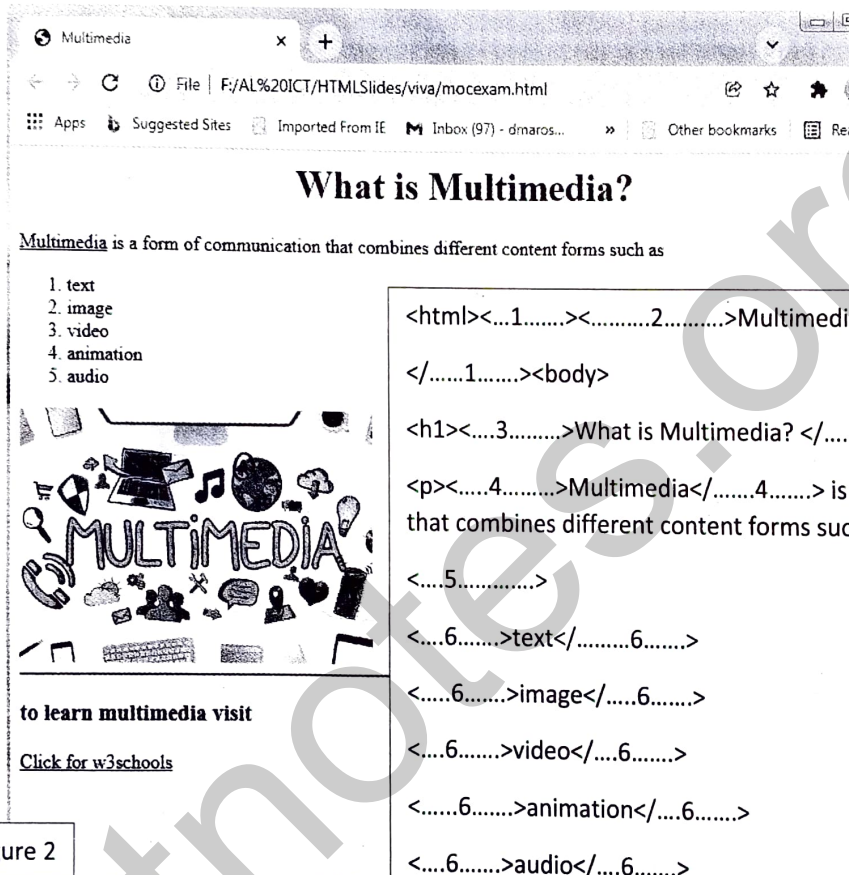


figure 2

```
<html><...1.....><.....2.....>Multimedia</title>
</.....1.....><body>
<h1><...3.....>What is Multimedia? </.....3.....></h1>
<p><....4.....>Multimedia</.....4.....> is a form of communication
that combines different content forms such as <p>
<...5.....>
<...6.....>text</.....6.....>
<...6.....>image</.....6.....>
<...6.....>video</.....6.....>
<...6.....>animation</.....6.....>
<...6.....>audio</.....6.....>
</.....5.....>
<img ....7.....="multimedia.jpg" width="300" .....8... ="Multimedia">
<.....9....., color="red"><h3>to learn multimedia visit </h3>
<a ...10... ="https://www.w3schools.com">Click for w3schools<a/>
</body>
</html>
```

Figure 1

(b) The following is an HTML encoded table.

S.No.	Unit Name	Marks
1.	Lab Test (10 marks)	
	Word processing	7
	Handling spreadsheets	7
	Creating presentations	8
	Writing basic Python/Scratch programs	8
2	Report File + viva (10 marks)	

Select the suitable HTML tags from the given list to fill the given source code.  
(Write the label number and the Tag only)

<Table ... (1) ... =2>

<... (2) ...> <... (3) ...> S.No. </... (3) ...> <... (3) ...> Unit Name </... (3) ...> <... (3) ...> Marks

</... (3) ...> </... (2) ...>

<tr> <... (4) ...> 1. </... (4) ...> <... (4) ... .. (5) ... =2> Lab Test <... (7) ... /> (10 marks) </td>

</tr>

<tr> <td .... (6) .... =4 ></td><td> Word processing </td> <td> 7 </td></tr>

<tr> <.. (4) ..> Handling spreadsheets </.. (4) ..> <.. (4) ..> 7 </.. (4) ..></tr>

<tr> <td> Creating presentations </td> <td> 8 </td></tr>

<tr> <td> Writing basic Python/Scratch programs </td> <td> 8 </td></tr>

<tr> <td> 2 </td> <td .. (5) .... ="2"> Report File + viva <... (7) ... /> (10 marks) </td>

</tr>

</Table>

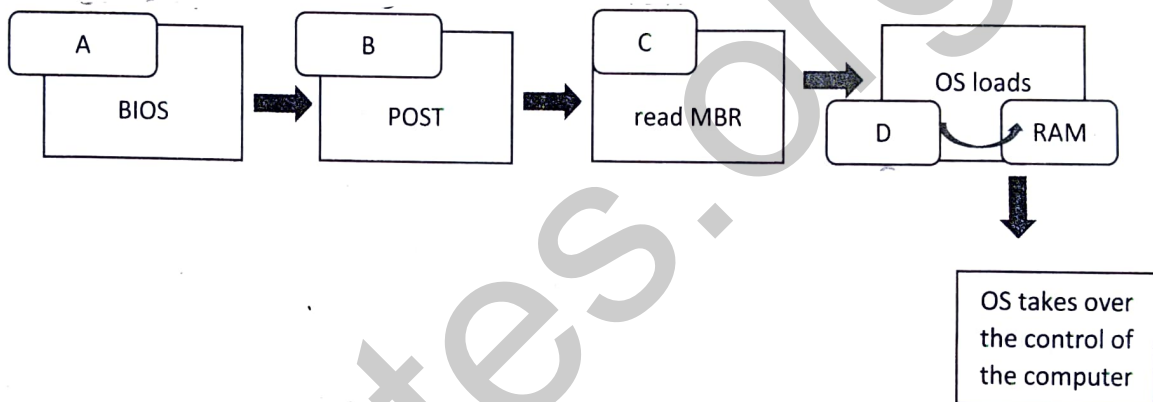
LIST-[tr , td, th, colspan , rowspan, border, br , b , I , center, P]

(03)

(a) Managing the Hardware & software of a computer is a very important key functionality of the Operating system in computer.

- I. Write down 3 functionalities under managing the Hardware & software of a computer.
- II. Briefly explain process management by Operating system in computer with an example.
- III. The initial operations of a computer are called Booting process are performed, Name the labels A-D with the suitable term from the above list.

List: [ROM, Hard Disc, CPU, bootstrap loader, user interface, CMOS, Boot drive]



(b) "Shanthi Caterers" plans to launch an online food ordering and home delivery service with the aim of providing an efficient customer service in the current epidemic situation. For this, they choose ABM Software Company, a company that designs computer systems.

- I. What is the role of ABM Software Company as the first step in designing a computer system?
- II. Write down two main tasks that can be performed when designing a computer system.
- III. ABM Software Company has decided to replace the waterfall model with an Iterative Incremental Model for system development. Write down two reasons for this.



(04)

The following worksheet in a spreadsheet software provides a sample of information to process Monthly payments for October for casual employees in a company.

	A	B	C	D	E	F	G
	Employee Number	Employee Name	Daily Rate Rs.	Attendance in October	Monthly Payment	Bonus Rs.	Bonus Rate
1							
2	E001	Pasindu	2050	23			20%
3	E002	Biman	2050	23			
4	E003	Bathisa	1500	21			
5	E004	Akash	1500	22			
6	E005	Thisath	1100	21			
7	E006	Deshima	1050	19			
8	E007	Onadi	1050	22			
9	E008	Tharuneth	2050	20			
10	E009	Sanula	2050	22			
11	E010	Sithuli	1100	23			
12	Maximum Attendance						
13	Minimum Attendance						
14	Total						

- I. Write down the formulas in the form of  $=function(cell1:cell2)$  that should be entered in cell D12 and D13, to find the highest and lowest attendance?
- II. What is the formula to be written to cell E2 to find Pasindu's Monthly Payment?  
(monthly payment=daily rate x monthly attendance)
- III. (a) What is the formula to be written to cell F2 to find Pasindu's October moth Bonus amount?
  - Bonus = monthly amount X Bonus Rate
  - The given Bonus rate is common for all Employees and this formula able to copy for all Employees(b) Write the formula which is used to prepare Sanula's Bonus amount.
- IV. What are the formulas to be written to the cell E14 and F14 to find the Total monthly payment and total Bonus amount the above employees?
- V. Suggest chart type which is used to compare the monthly attendance of Employees.

(05)

A School band has a collection of instruments and they are lent to students who do not have instruments but want to be a member of the School Band. The school band maintains a database to manage the lending of instruments to the students. The database contains tables as given below.

Instrument Table

Ins_ID	Instrument	Received_on
1101	Drum	01/01/2020
1102	Clarinet	01/01/2015
1103	Trumpet	01/07/2016
1104	Drum	01/05/2017
1105	Trumpet	01/07/2016

Issuing Table

Date	Ins-ID	S_ID
01/12/2021	1101	S003
01/02/2022	1102	S004
01/02/2022	1105	S003
01/03/2022	1101	S004

Student Table

S_ID	Name	Grade
S002	Sonali	10
S003	Kumar	9
S004	Rehan	10

- I. List two Primary key fields and their respective table names in the above database.
- II. Senuri (S\_ID-S006) joins the band on 2<sup>nd</sup> of March 2022 and borrows a Drum on the same day.
  - (a) What table(s) need(s) to be updated in the database.
  - (b) Write down the updated row(s) of the table(s) in the database.  
Use the format *table name* → (*field1, field2,..*) for each record.
- III. The School band received a donation of two new flutes on 2<sup>nd</sup> of February 2022.
  - (a) What table(s) need(s) to be updated in the database?
  - (b) Write down the updated row(s) of the table(s) in the database. Use the format *table name* → (*field1, field2,..*) for each record.
- IV. Mention an example for the foreign key with the table name in this database.
- V. If this is an updated Database; which equipment Kumar last borrowed.
- VI. Suggest the relationship type between Instrument and student tables. Give the reason using the above database.

(06)

A company called Nero is developing a website to promote their company's marketing. A website on the Internet has a unique domain name to distinguish it.

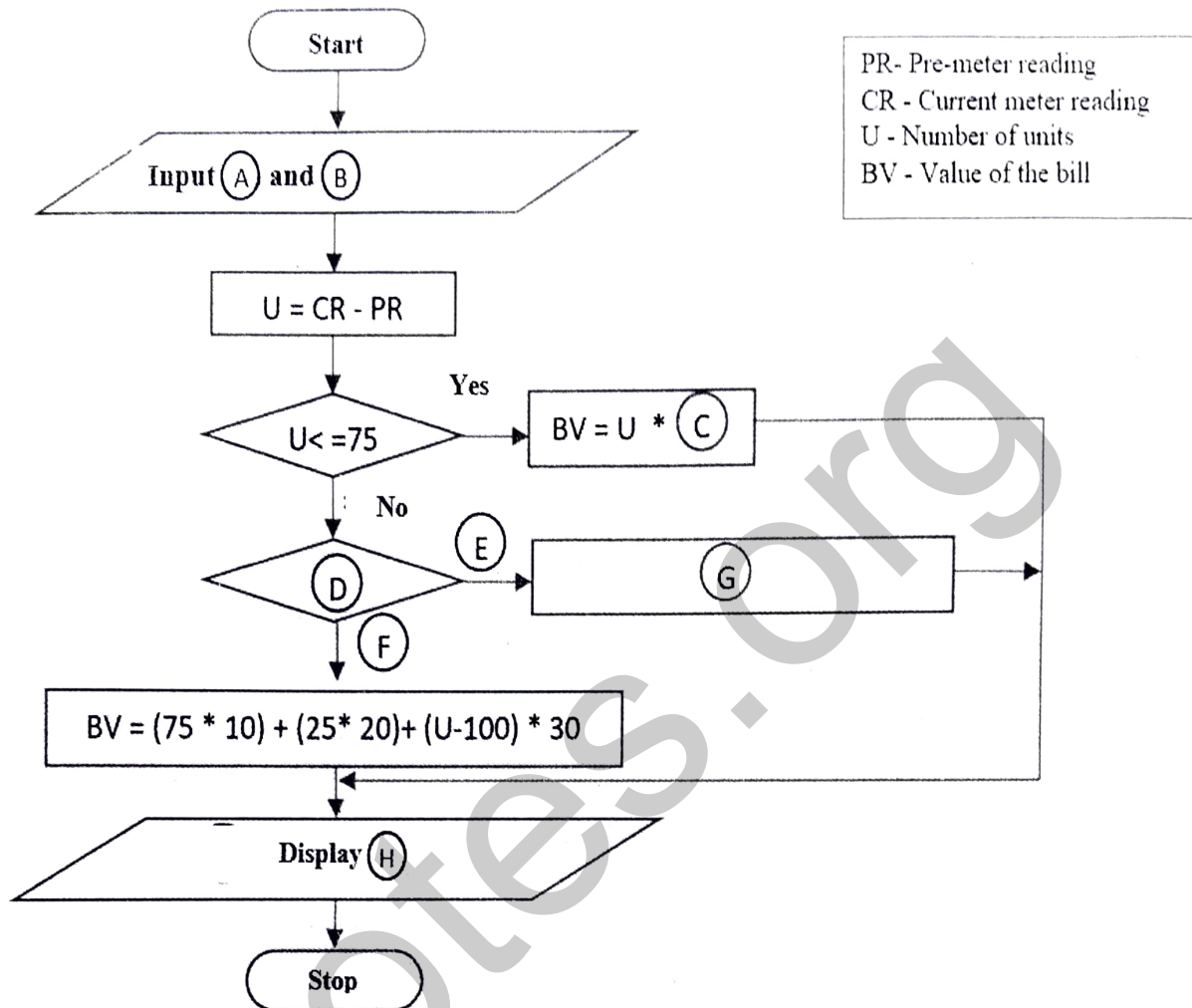
- I. Each domain name has a unique IP address. What is the server that converts a domain name into the relevant IP address?
- II. Nero company is concerned about actions to be taken to stop unauthorized access to their existing local area network (LAN). This is an Internet-connected network. Write down any advice you can give.
- III. If you have the opportunity to advise employees who have been working with the computer for a very long time, briefly outline **four** advices that you can provide them.
- IV. An employee of the company says that the company has included malicious software for several computers. Write down **four** factors that can cause you to recognize that.
- V. Give examples of **four** such malicious software.
- VI. This company is looking into the possibility of using some software without installation. To do this, they decide to use the concept of cloud computing. What cloud computing service can they use? Briefly describe it.

(07)

(a) The price to be paid for domestic electricity consumption is based on the number of units of electricity consumed. The charge per unit is shown in the table below

Description	Charge per unit
Up to 75 first units	Rs.10
Units 76 to 100	Rs. 20
For more than 100 units	Rs. 30

The flow chart below is drawn up to prepare the bill for household electricity consumption. Write the relevant term for the labels (A) to (H) on your answer sheet. You do not need to copy the flow chart to your answer sheet.



(b) Consider the given Array A .

A [0]	A [1]	A [2]	A [3]	A [4]	A [5]
5	P	Q	R	S	T

Write the values P, Q, R, S and T after the given pseudo code has been executed on the array A above.

```

Begin
value=A[0]
i = 1
while i < 6
  A[i] = value + 4
  value= value *2
  i = i + 1
end while
end
  
```