ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்

අ.පො.ස. (උ.පෙළ) විභාගය/ க.பொ.த. (உயர் தர)ப் பரீட்சை - 2017

විෂයය අංකය பாட இலக்கம் 20

විෂයය பாடம் තොරතුරු හා සන්නිවේදන තාක්ෂණය

ලකුණු දීමේ පටිපාටිය/புள்ளி வழங்கும் திட்டம்
I පත්‍රය/பத்திரம் I

ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.
01.	05	11.	02	21.	03	31.	04	41.	05
02.	01	12.	04	22.	04	32.	01	42.	02
03.	05	13.	All	23.	01	33.	05	43.	04
04.	04	14.	01	24.	03	34.	04	44.	05
05.	03	15.	05	25.	05	35.	05	45.	02
06.	01	16.	04	26.	2 or 4	36.	05	46.	03
07.	05	17.	05	27.	01	37.	03	47.	05
08.	All	18.	03	28.	05	38.	03	48.	03
09.	01	19.	04	29.	02	39.	05	49.	05
10.	05	20.	03	30.	02	40.	02	50.	03

✪ විශේෂ උපදෙස්/ விசேட அறிவுறுத்தல் :

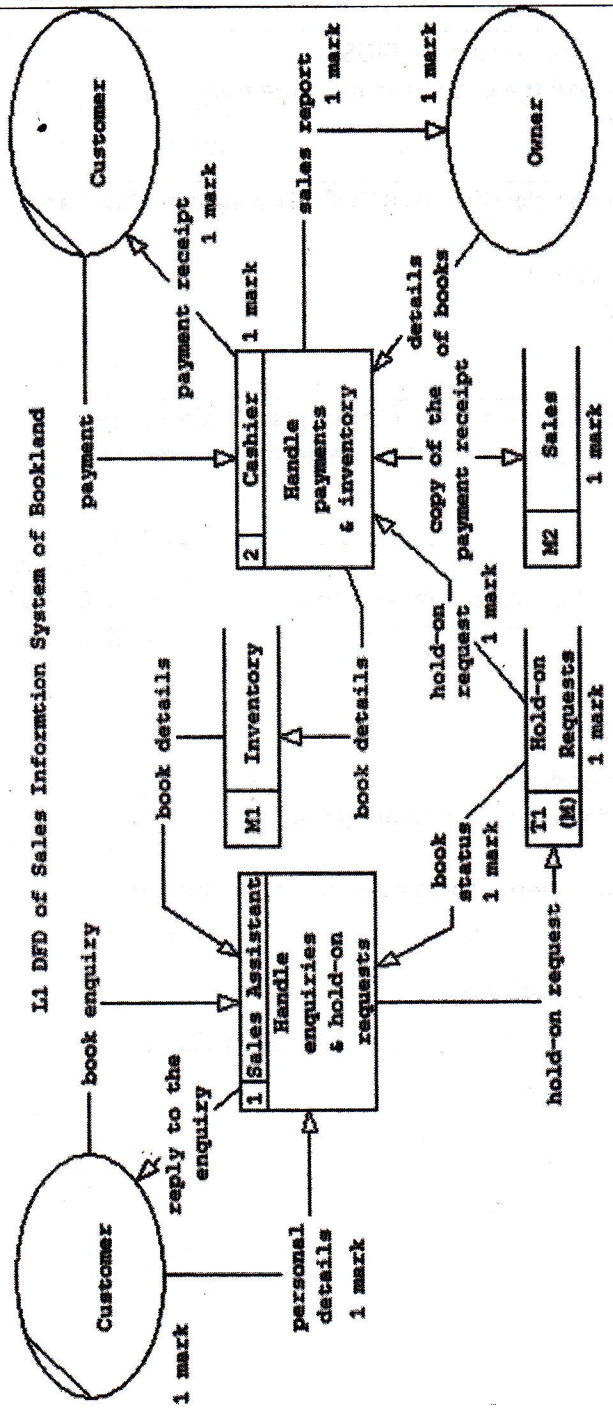
එක් පිළිතුරකට/ ஒரு சரியான விடைக்கு 02 ලකුණු බැගින්/புள்ளி வீதம்

මුළු ලකුණු/மொத்தப் புள்ளிகள் 2 × 50 = 100

Information and Communication Technology (20)

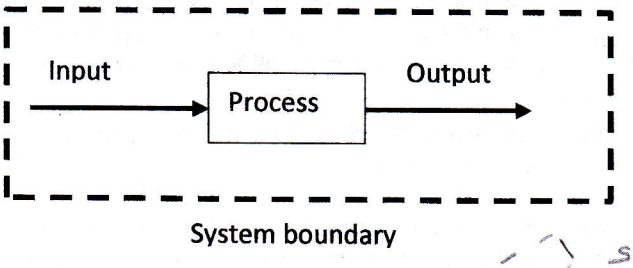
Paper II Part A

2017

Q. No.	Model Answer	Marks
1.		10

Each blank filled in with the correct answer 1 mark

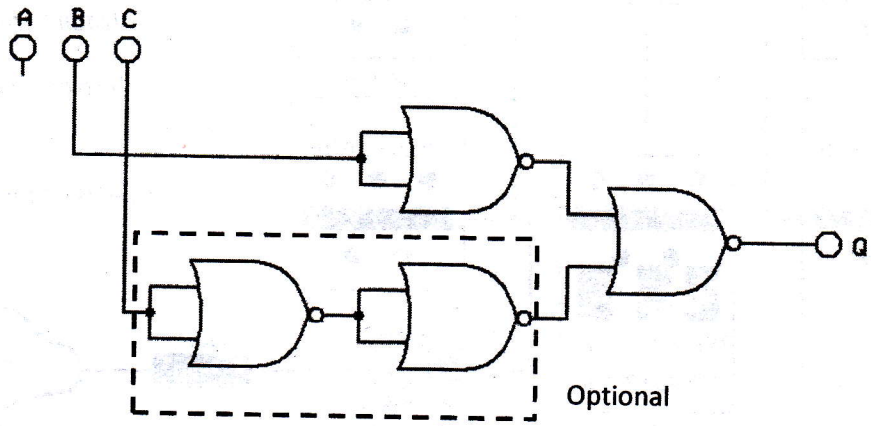
2.(a)	• Termination (end) of the process • Time out (end of the time slice) • Blocked for input/output operation	1 x 3 3
2.(b)	• Store the current state of the running process in the PCB. • Load the state of the process to be continued to the CPU from the PCB. • Transfer the control to the process to be continued. Note: Deduct 1 mark from the total if any one or both of PCB is missing)	1 2 or 0 1 4
2.(c)	• Power on self test (POST)/Executing or running BIOS • Run the bootstrap program to load the O/S to the main memory. • Transfer the control to the O/S.	1 x 3 3
3.(a).(i)	A transaction between two persons can be classified as B2B if following conditions are satisfied 1. It should be an online service/transaction. 2. The buyer should be a business user 3. The seller should be a business user	1 x 3 3
3.(a).(ii)	If the seller is replaced by a software agent, then agent represents a business user. Therefore, main proactive behavior is to take **actions** that **makes high (Increase) business profit.**	1 1
3.(b).(i)	insert into student **A** values('10001', 'Saman Kumara', '78, Mahara road, Maharagama') **B** **C** Or insert into student (student_no, name, address) values('10001', 'Saman Kumara', '78, Mahara road, Maharagama') The order of the values in the values statement should be same as the order of attributes in insert statement. **Note:** All names should be as in the table definition.	*[A only]* 1 *[A and B only]* 2 *[A, B and C]* 3 3

3.(b).(ii)	update student set address = '13, School Lane, Jaffna' } **A** where student_no like '10001%' } **B** or update student set address = '13, School Lane, Jaffna' } **A** where student_no like '10001' } **B** update student set address = '13, School Lane, Jaffna' } **A** where student_no = '10001' } **B** (Note: The = sign only works for varchar type attributes) Or update student set address = '13, School Lane, Jaffna' } **A** (Assumption: Only one student record in the database) } **B**	*[A only]* *[A and B]*	2 or 0 3 3
4.(a).(i)			1
4.(a).(ii)	In closed system both **input and output** are available **within** the **system.** Or A sentence with the same meaning		4 or 0 4
4.(b)	person(<u>NICNo</u>) mobilePhone(<u>TelephoneNo</u>, NICNo) Each correct relation with attributes 1 mark Each primary key 1 mark (only if the relation is correct) 1 : M relationship (No more than two relations) Note: 1. If tables are drawn 1 mark for both correct tables. 2. Any form of words given in the question is acceptable		 2 2 1 5

Information and Communication Technology (20)

Paper II Part B

2017

Q. No.	Model Answer	Marks
1.(a)	Air-conditioner (Q) *[Define output]*	1
	A B C Q 0 0 0 0 0 0 1 0 0 1 0 1 0 1 1 0 1 0 0 0 1 0 1 0 1 1 0 1 1 1 1 0.	
	[Correct input columns + 8 combinations]	1+1
	[Correct output column]	2
	Q = A'.B.C' + A.B.C' = B.C'.(A'+A) = B.C' (distributive law, complement law) *[Boolean expression]*	3
	[At least one correct rule]	1
	[Solution]	1
	 *[Circuit]*	3 or 0
		13
1.(b)	Yes. Input that represents Switch (A) is **not** in the Boolean expression/circuit/solution. Therefore, it is **not** required for the operation of the air-conditioner.	1 1 2

2. Assume that the entire private address range is used *(it can be any range)*

Since there are 4 subnets, it is required to divide the address range into 4 segments.
For this, add two more bits to the subnet mask.
Subnet mask length becomes 10.
11111111.11000000.00000000.00000000
Therefore, the 4 subnets would be:

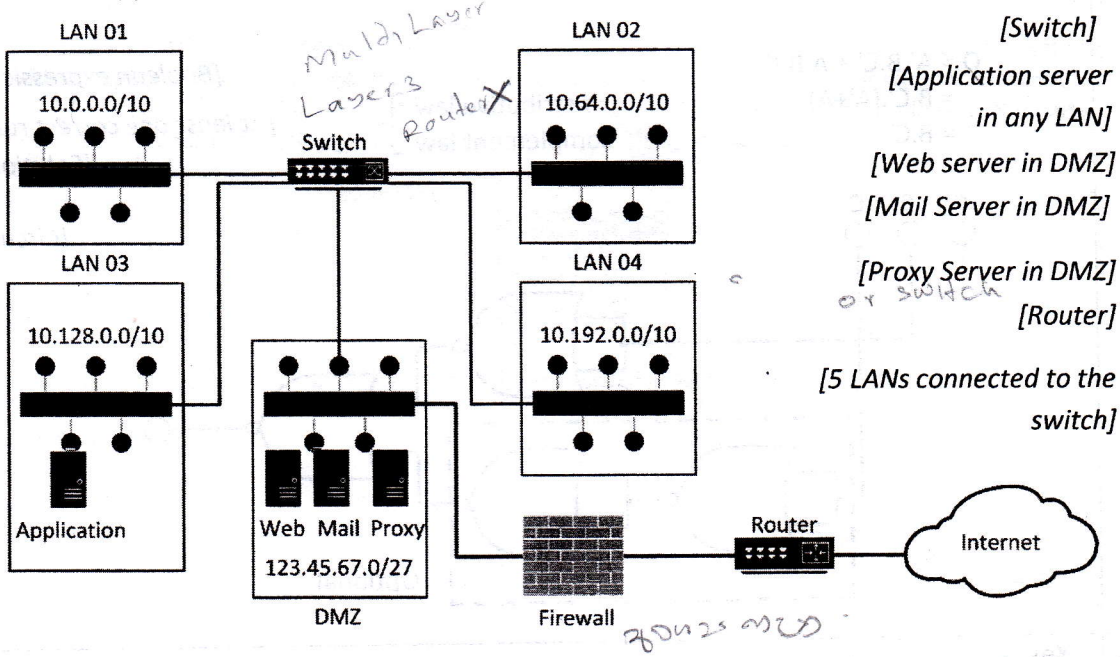
1. 00001010.00000000.00000000.00000000 = 10.0.0.0/10
2. 00001010.01000000.00000000.00000000 = 10.64.0.0/10
3. 00001010.10000000.00000000.00000000 = 10.128.0.0/10
4. 00001010.11000000.00000000.00000000 = 10.192.0.0/10

[1 x 4] 4

(if they decide to use /24 ranges, they should assume that 255 addresses are enough for each subnet. Then they should show the selection of /24 ranges.)

Note: If the selected ranges are shown in the diagram these 4 marks can be given

Needed Devices: **05 Hubs**, **Switch**, **Router**, Firewall, Web Server, Mail Server, Proxy server, Application Server.



[Switch] 1
[Application server in any LAN] 2
[Web server in DMZ] 1
[Mail Server in DMZ] 1
[Proxy Server in DMZ] 1
[Router] 1
[5 LANs connected to the switch] 2

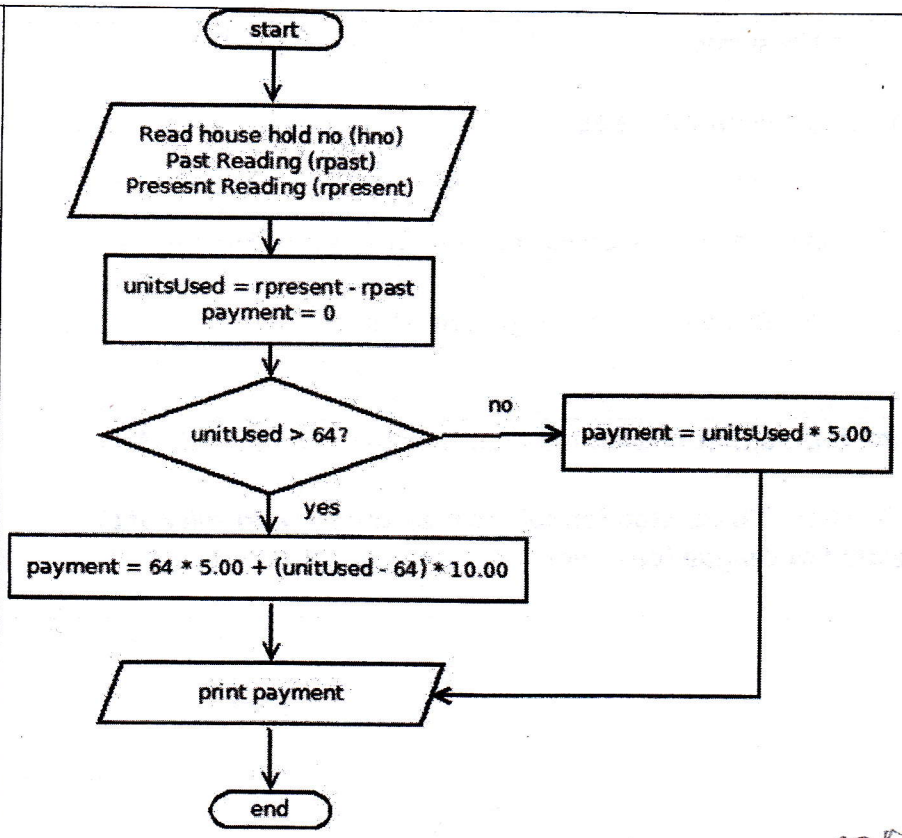
Since any computer in any subnetwork can access resources in all subnetworks, the application server can be established in any subnetwork. Since it is for internal clients, it should not be located in the DMZ.

Note: 1.Proxy Server could be directly connect to the Switch

When the packet goes to the proxy server, its source IP address is rewritten with the public IP address of proxy server. 2

3.(a)	G2C or Government to Consumer Note: Government to Citizen only 2 marks	3
3.(b)	G2B or G2E, It is a service provided in online by the Government to Business or Employees.	1 1
3.(c)	Because it is a service provided by business to **government**. Therefore it is B2G.	4 1
3.(d)	Law: **To prepare fine calculations mechanism** according to the (***criticality of the identified place***). **Epidemic Control Division: (To develop formula to measure the *criticality of the identified place related to dengue breeding*).**	3 2

4.(a)



	[Input]	1
	[Calculation]	1
	[Condition]	1
	[Calculation]	1
	[Calculation]	1
	[Print]	1
	Complete answer	1
		7

4.(b)

```
hno = input("Enter house hold number ->")
rpast = int(input("Last meter reading ->"))
rpresent = int(input("Present meter reading ->"))
unitsUsed = rpresent - rpast
if unitsUsed > 64:
   payment = 64 * 5.00 + (unitsUsed - 64) * 10.00
else:
   payment = unitsUsed * 5.00
print(payment)
```

[Input]	1
[if with correct computation]	1
[else with correct computation]	1
[Print]	1

Assumptions : The assumptions are based on the programme

- The present meter reading is higher than the past meter reading
- Integer values should be entered for present and past meter readings

4

4.(c)

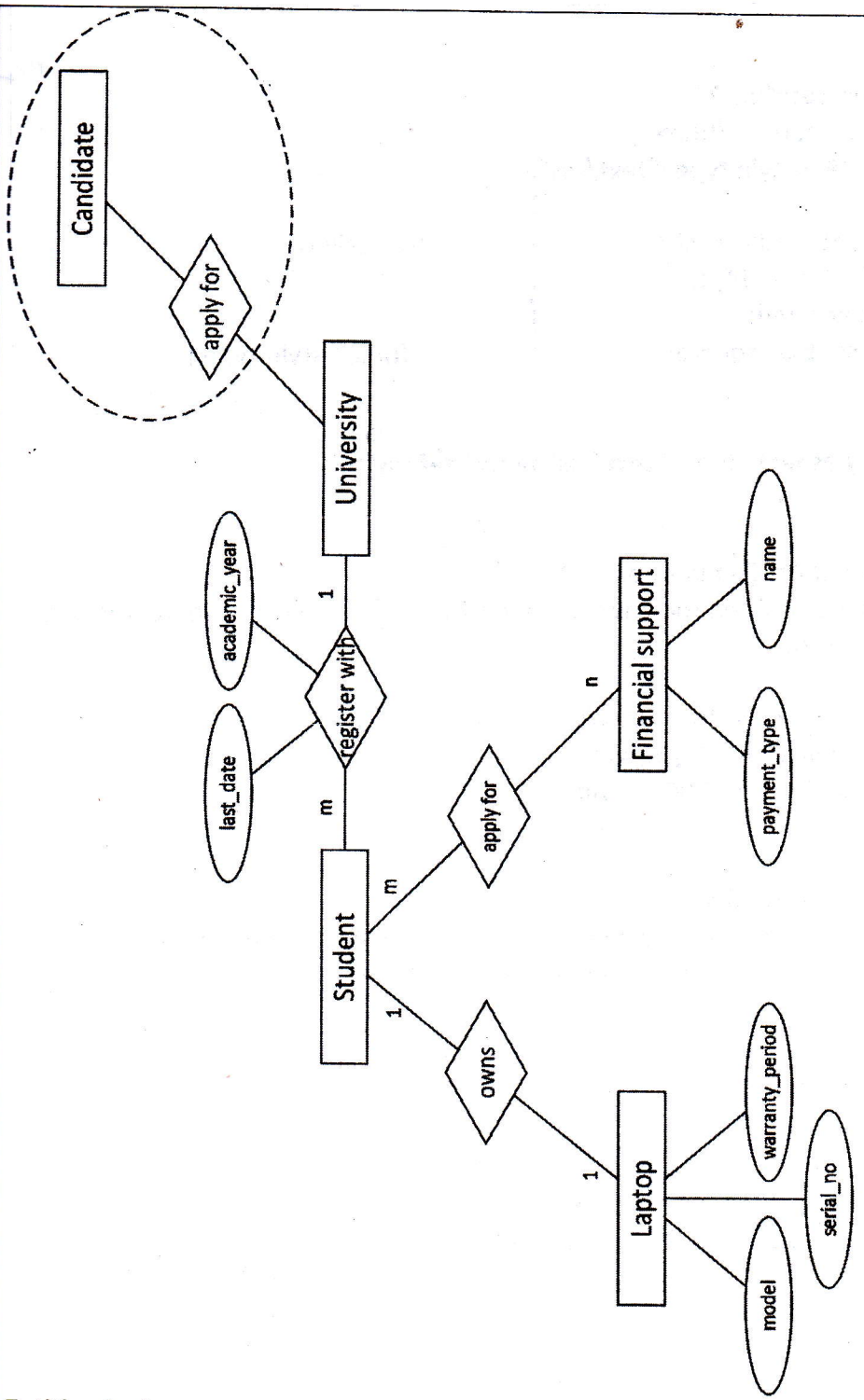
```
def writetofile(houseNo,rpast,rpresent,charge):
   f = open("deb.txt","a")
   print(houseNo,rpast,rpresent,charge,file=f,sep=",")
   f.close()
```

1
1
1
1

Note: f.write(str(houseNo)+ " "+ str(rpast)+ " "+ str(rpresent) + " " + str(charge))
f.write("%s %s %s %s" % (houseNo,rpast,rpresent,charge))

4

5.



Entities 1x 4	4
Relation with correct cardinality 1x3	3
Acceptable attributes attached to any entity 1 mark each maximum 5	5
Attributes attached to relation 1x2	2
Circled section	1

6.(a)

```
<html >
    <head>
        <meta charset="utf-8">
        <title>Information</title>
        <style>  OR <style type="text/css">
            li{                                          [or "calibri"]
                font-family: calibri;
                font-size: 14pt;                                          4
                color: red;
                list-style: square;                      [or list-style-type ]
            }
    </style>
OR <link rel="stylesheet" type="text/css" href="def.css">
    </head>
    <body>
        <h1>Student Art Competition</h1>
        <h2>Theme: Litter on the environment </h2>   [At least 2 different levels]   2
        <h3>PRIZES</h3>
        <ul>
            <li>1st place Rs. 10,000/=</li>
            <li>2nd place Rs. 7,500/=</li>                                        1
            <li>3rd place Rs. 5,000/=</li>
        </ul>

        <h3>ENTRY FORM</h3>
        <p>Please fill and submit this <a href = "form.html" target = _blank>     2
            online entry form</a> to enter the competition. </P>

    </body>
<html>
```

9

6.(b)

```
<html>
    <head>
        <meta charset="utf-8">
        <title>Entry Form</title>
    </head>

    <body>
        <h1>Art Competition Online Entry Form 2017</h1>
        <h3>Theme: Litter on the environment</h3>
        <form method = "get" action = "script.php">
            Name: <input type="text" name="name" >
            <p>Gender:
            <input type="radio" name="sex" value="male" > Male
            <input type="radio" name="sex" value="female" > Female
            </p>

            <p>Grade Category
            <select name="ageGroup">
                <option value="g1">Grade 1 - 2</option>
                <option value="g2">Grade 3 - 6</option>
                <option value="g3">Grade 7 - 10</option>
                <option value="g4">Grade 11 - 13</option>
            </select></p>

            <p>Art media: </p>
            <input type="checkbox" name="media1" value="Colour" >
                    Water Colours
            <br />
            <input type="checkbox" name="media2" value="Pencils" >
                     Colour Pencils
            <br />
            <input type="checkbox" name="media3" value="Crayon" > Crayon
            <br />
            <input type="checkbox" name="media4" value="Chalk" > Chalk

            <p><input type = "reset"  value = "Clear your Entries"></p>

            <p><input type="submit" value="Submit" ></p>

        </form>
    </body>
</html>
```

[<form> and </form>] 1

1

1

1

1

1

6