

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2009 දෙසැම්බර්
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2009 டிசெம்பர்
 General Certificate of Education (Ord. Level) Examination, December 2009

තොරතුරු හා සන්නිවේදන තාක්ෂණය **I, II** පැය තුනයි
 தகவல், தொடர்பாடல் தொழினுட்பவியல் **I, II** மூன்று மணித்தியாலம்
Information & Communication Technology I, II **Three hours**

- Note:** (i) Answer all questions.
 (ii) In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which you consider as correct or most appropriate.
 (iii) Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
 (iv) Further instructions are given on the back of the answer sheet. Follow them carefully.
 (v) After answering paper I and paper II, tie the two sets of answer scripts together and hand over.

1. A doctor monitors the temperature of a patient having fever over a five hour period by:
 (A) laying the hand on the patient's forehead at an hourly interval.
 (B) asking the patient about the fever condition at an hourly interval.
 (C) drawing a graph using the readings obtained by a thermometer at an hourly interval.
 Which of the above gives/give the doctor, information about the patient's fever condition?
 (1) Only (A) (2) Only (B) (3) Only (C) (4) All (A), (B) and (C)

2. The invention of the Integrated Circuits marked the start of the generation of computers.
 (1) first (2) second (3) third (4) fourth

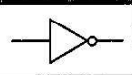
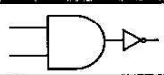
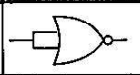



3. Which row of the given table matches the two columns, Hard disk and Scanner correctly?
 (1) A
 (2) B
 (3) C
 (4) D

A	Input	Output
B	Storage	Input
C	Input	Storage
D	Output	Input

4. Consider the following statements given below.
 (A) Sequential access files cannot be stored in floppy disks.
 (B) Random access files cannot be stored in magnetic tapes.
 (C) Both sequential access files and random access files can be stored in Compact Discs.
 Which of the above statements is/are true?
 (1) (A) only (2) (B) only (3) (A) and (C) only (4) (B) and (C) only

5. The management of a certain cafeteria expects to offer a better service to their customers. As the first step they want to find out how long it has to be kept opened to serve food to all customers during lunch time. They hope to input the following data into a computer with relevant software in this regard.
 (A) The number of customers using the cafeteria during lunch time.
 (B) The number of cashiers.
 (C) The average time that a customer spends waiting in the queue.
 Which of the above should be input to the computer?
 (1) (A) and (B) (2) (A) and (C) (3) (B) and (C) (4) All (A), (B) and (C)

6. Travelling of two trains in opposite directions through a single track tunnel in a railway can be used as an example to explain:
 (1) simplex communication of data through a data channel.
 (2) half duplex communication of data through a data channel.
 (3) full duplex communication of data through a data channel.
 (4) point to point communication of data through a data channel.

7. Which one of the following is **incorrect** regarding Local Area Networks (LANs)?
 (1) Geographically distributed in a small area
 (2) Generally owned by a single person or an organization
 (3) Consist of many shared data communications media with various interfaces
 (4) Generally consist of topologies: Bus, Star and Ring
8. The minimum number of bits required to represent the Hexa-decimal number ACE_{16} is
 (1) three. (2) nine. (3) eleven. (4) twelve.
9. What is the decimal equivalent of 101011_2 ?
 (1) 27 (2) 41 (3) 43 (4) 51
10. 2 megabytes contain
 (1) 2^7 bytes. (2) 2^{21} bytes. (3) 2×10^6 bytes. (4) 2×10^{20} bytes.
11. A student borrows Rs. 50 from his friend and paid it back completely in two installments A and B. Which of the following could be the binary equivalent of the installments?
 (1) $A = 100010_2$ and $B = 1100_2$ (2) $A = 100111_2$ and $B = 1010_2$
 (3) $A = 100011_2$ and $B = 1111_2$ (4) $A = 100001_2$ and $B = 1110_2$
12. The ASCII code of the character "A" is 65. Which one of the following represents the character "A" in binary?
 (1) 111111_2 (2) 110101_2 (3) 1000010_2 (4) 1000001_2
13. Which one of the following values is **not** equivalent to $1AF_{16}$?
 (1) 431_{10} (2) 110101111_2 (3) 657_8 (4) 567_8
14. If $P=1010_2$ and $Q=1111_2$ then $P+Q =$
 (1) 11001_2 (2) $1A_{16}$ (3) AF_{16} (4) 10101_2
15. Which one of the following Boolean relations is verified by the given truth table?
 (1) $A + A = A$
 (2) $A.A = A$
 (3) $A + A = A$ and $A.A = A$
 (4) $A + 1 = 1$
- | A | 1 | Output |
|---|---|--------|
| 0 | 1 | 1 |
| 1 | 1 | 1 |
16. Which of the digital logic symbols given in the table represent, NOT logic?
 (1) A and B (2) B and C
 (3) A and C (4) A, B and C
- | A | B | C |
|---|---|---|
|  |  |  |
17. A father presents an electronic talking parrot to his son on his birthday. It can be controlled remotely by two push button switches. When both buttons are not pressed at all or pressed together, the parrot does not talk, but talks when either one of them is pressed. The digital logic that corresponds to the operation of the talking parrot is
 (1) OR (2) AND (3) NOR (4) XOR
18. Which of the following is/are responsible for the management, coordination of activities and sharing of resources of a computer?
 (1) Applications software (2) Operating system
 (3) Systems utilities (4) Graphical User Interfaces (GUIs)
19. In word processing, the symbols    respectively represent
 (1) left, centre and right tab stops. (2) right, left and centre tab stops.
 (3) left, right and centre tab stops. (4) right, centre and left tab stops.
20. A database that contains tables linked by common fields is called a
 (1) flat-file database. (2) centralized database.
 (3) distributed database. (4) relational database.

21. The Memo field of a table in a database is used to store
 (1) lengthy text. (2) audio clips.
 (3) video clips. (4) lengthy text and audio clips.
22. What is the part of a table in a database that contains one specific type of data?
 (1) Query (2) Report (3) Record (4) Field

23. The given figure shows a part of an electronic worksheet created by a student to display two times table (2, 4, 6, .. 24). What formula would have been written into cell C1 by the student?
 (1) =A1*B1
 (2) =\$A1*B1
 (3) =A\$1*B1
 (4) =\$A\$1*\$B\$1

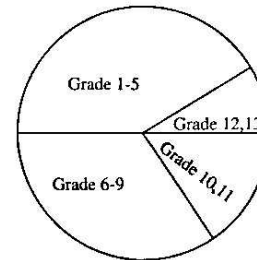
	A	B	C	D
1	2	1	2	
2		2	4	
3		3	6	
..		.	.	
.		.	.	
12		12	24	

24. The given figure shows a part of an electronic worksheet which contains names of students and the percentage of marks obtained by them in an examination. The evaluation is done on the basis of obtaining at least 40 marks is a "Pass" and otherwise a "Fail".

	A	B	C	D
1	Name	Marks %	Status	
2	David	65	Pass	
3	John	36	Fail	
4	Mary	40	Pass	
5	Charles	78	Pass	

What is the formula that should be written into cell C2 in order to obtain the given results when it is copied downwards along the C column?

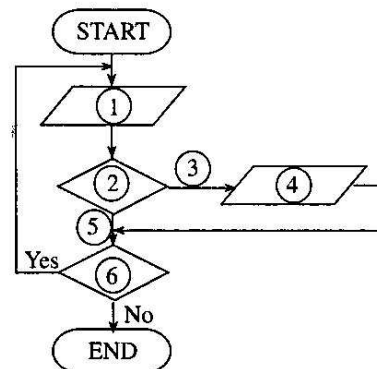
- (1) =IF(B2 > 40,"Pass","Fail")
 (2) =IF(B2 >= 40,"Fail","Pass")
 (3) =IF(B2 < 40,"Fail","Pass")
 (4) =IF(B2 <= 40,"Fail","Pass")
25. The given Pie chart represents the grade wise distribution of 1000 students in a school. Which one of the following conclusions is **incorrect**?
 (1) There are more than 375 students in grades 1-5.
 (2) There are more than 250 students in grades 6-9.
 (3) There are more than 125 students in grades 10,11.
 (4) There are more than 125 students in grades 12,13.



26. Which one of the following would return **FALSE** when entered into a cell of an electronic worksheet?
 (1) = 1 >= 1 (2) = 2 <> 1
 (3) = NOT(1 + 1 = 2) (4) = AND(1 + 1 = 2, 1 - 1 = 0)

27. The given flowchart models the reading of a set of temperatures (T) and displaying a message "Cold" when they are below 26 °C. What is the correct sequence of the labels that should be denoted by the circles 1, 2, 3, 4, 5, 6 of the flowchart?

- (1) Read T, T < 26, No, "Cold", Yes, Any more?
 (2) Read T, T <= 25, Yes, "Cold", No, Any more?
 (3) Read T, Any more?, Yes, "Cold", No, T <= 25
 (4) Read T, Any more?, No, T < 26, Yes, "Cold"



28. What will be the value output by Display Z of the given pseudo-code?

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

```

Begin
  X=1
  Y=1
  While (X=Y)
    Z=X+Y
    Y=2
  EndWhile
  Display Z
End
```

29. If N is an Integer variable, the following program code:

```

N=10
M=6
Do While M > 5
  N = N - 1
Loop
```

- (1) executes 6 times.
- (2) executes 5 times.
- (3) never begins.
- (4) never ends.

30. What is the order of precedence of operators used to evaluate the expression $2*(3+4)-5/2+6$ in computer programming?

- | | | | | | |
|-----|-----|-----|---|---|---|
| (1) | () | * | / | - | + |
| (2) | * | () | - | / | + |
| (3) | + | * | - | / | + |
| (4) | () | * | - | / | + |

31.

Column X	Column Y
(A) Loop	(P) A given sequence of instructions is executed.
	(Q) A part of a program that operates automatically.
(B) Selection	(R) A condition that is used to choose one out of two things.
	(S) A programming technique that repeats a sequence of instructions until a specified condition is satisfied.

In computer programming, which one of the following relationships is correct, regarding the contents in columns X and Y of the table given above.

- (1) (A) with (Q) and (S)
- (2) (A) with (S) and (B) with (R)
- (3) (B) with (P) and (R)
- (4) (B) with (Q) and (S)

32. What is the value of $5 \text{ MOD } 2$?

- (1) 0
- (2) 1
- (3) 2.5
- (4) 3

33. The feasibility study about a given system should be carried out by

- (1) users of the proposed system.
- (2) managers of the organization.
- (3) systems analysts in consultation with the managers of the organization.
- (4) senior programmers in consultation with both prospective users and the managers of the organization.

34. What is the computer based information system that is used at the operational level of a business organization?

- (1) Decision Support System
- (2) Transaction Processing System
- (3) Management Information System
- (4) Information management System

35. A computer responsible for storing and managing data centrally in a computer network is called a/an
(1) file server. (2) data server. (3) web server. (4) application server.
36. Consider the following three statements (A), (B) and (C).
(A) Passwords are used to protect systems from viruses.
(B) A key factor of determining systems vulnerability to attacks is weak passwords.
(C) E-mailing a password is a secure method of distribution.
Which of the above statements is/are **false**?
(1) (A) only (2) (B) only (3) (C) only (4) (A) and (C) only
37. A virus that is disguised as a useful computer program is called
(1) a spam. (2) a hacker. (3) a Trojan Horse. (4) a worm.
38. Which one of the following describes software piracy?
(1) Copying of computer programs illegally
(2) Backing up of all the software in the hard disk
(3) Infecting hard disk with uncommon viruses
(4) Selling Personal Computer software for a large profit
39. Which one of the following pairs of HTML tags is **incorrect**?
(1) <html> </html> (2) <body> </body> (3) <title> </title> (4)
 </br>
40. Digital divide separates
(1) hardware into two categories, analog and digital.
(2) software into two categories, systems and applications.
(3) firmware into two categories, ROM and CMOS RAM.
(4) people into two categories, 'computer literate' and 'computer illiterate'.

* *

සියලු ම හිමිකම් ඇවිරිණි]

முழுப் பதிப்புரிமையுடையது]

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ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
 ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
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 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2009 දෙසැම්බර්
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2009 டிசெம்பர்
 General Certificate of Education (Ord. Level) Examination, December 2009

Information & Communication Technology II

- * Answer five questions only, including first question and four other questions.
- * First question carries 20 marks and each of the other questions carries 10 marks.

1. Write short and exact answers.

- (i) List **two** developments in Information and Communication Technology which make it easier for students to carry out their educational activities from home.
- (ii) Write a security feature available in word processing packages to protect document files.
- (iii) Write **two** disadvantages of using faxes in communication.
- (iv) What is the minimum number of keys required to represent the English alphabet (A to Z, a to z), digits (0 to 9) and the ten special characters ! @ # \$ % ^ & * () in a computer keyboard?
- (v) Why it is **not** advisable to place speakers very close to a CRT monitor?
- (vi) State **two** advantages of a flash memory over a DVD-RW (Rewritable).
- (vii) What is the purpose of having a fan in the power supply unit of a desktop computer?
- (viii) What operation is indicated by the icon  in graphics applications software?
- (ix) What is the purpose of using remarks in a computer program?
- (x) Environmentalists plan to test a lake for water pollution. State **two** advantages of using a computer to do this rather than doing it manually.

2. With the development of ICT the traditional work pattern of the Sri Lankan society has changed noticeably. Mrs. Salgadu is the secretary to the chief executive officer of an office that makes use of the benefits of the technology immensely. Following is a part of her daily schedule at work.

- | | |
|------------------|--|
| 8.30 a.m. | Start work. |
| until 9.30 a.m. | Read the diary. Refer to faxes and postal letters that were received on the previous day and distribute them to officers concerned. |
| until 10.30 a.m. | Power up the computer and get connected to the office Intranet to check e-mails and send replies. Make a list of the priorities of the day with the consent of the chief executive officer and take actions to implement them. |
| until 10.45 a.m. | Tea break. Make arrangements to pick up her daughter from school by sending a SMS to her husband. |
| until 12.30 p.m. | Prepare reports of the meetings held on the previous day and save it in the computer. Send hard copies of those reports to the relevant officers. |
| until 1.30 p.m. | Lunch break. Certain days she goes to the ATM machine in front of the office and draws money for her casual expenses by using her ATM card. |

- (i) State **three** occasions on which Mrs. Salgadu uses ICT to carry out her work.
- (ii) Name **three** applications software that she can use to make her work easy. Justify your selection.
- (iii) Write **two** advantages of having an Intranet in such an office.
- (iv) Suggest **two** methods by which she can protect the valuable data stored in the hard disk.

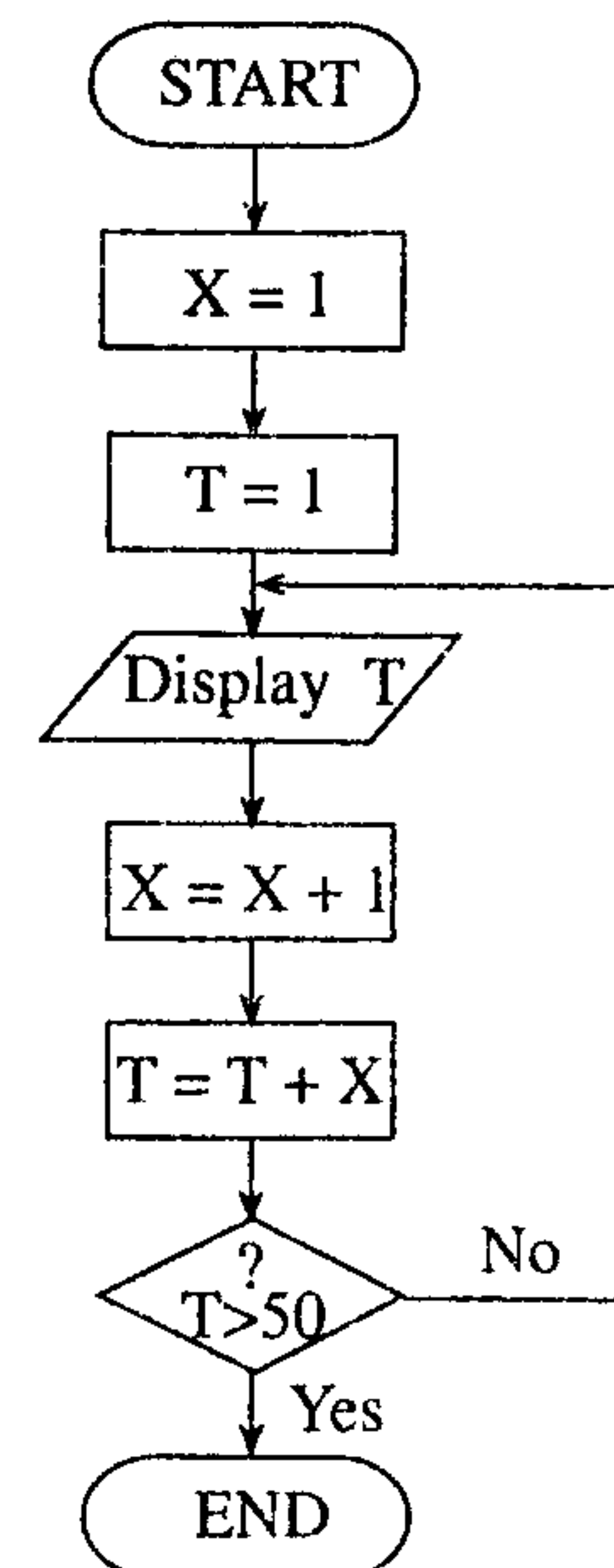
3. "Do Little" is a small business organization. Since there are a few employees they use a simple electronic worksheet to prepare their monthly payroll. A part of the worksheet used for this purpose is shown below.

	A	B	C	D	E	F	G
1	Do little Organization						
2	Payments	May 2009					
3	Normal working hours per week			40			
4	Emp. Code	Name	Hours Worked	Hourly Rate	OT Rate	OT Hrs.	Total Pay
5	C1007	Pravin	46	Rs. 200.00	Rs. 300.00	6	Rs. 9,800.00
6	C1009	Nalaka	54	Rs. 200.00	Rs. 300.00	14	Rs.12,200.00
7	C1011	Sivapalan	55	Rs. 200.00	Rs. 300.00	15	Rs.12,500.00
8	M2003	Ahamed	50	Rs. 250.00	Rs. 375.00	10	Rs. 13,750.00
9	E3002	John	42	Rs. 275.00	Rs. 412.50	2	Rs. 11,825.00
10	S3008	Mary	40	Rs. 275.00	Rs. 412.50	0	Rs. 11,000.00
11					Grand Total		Rs. 71,075.00

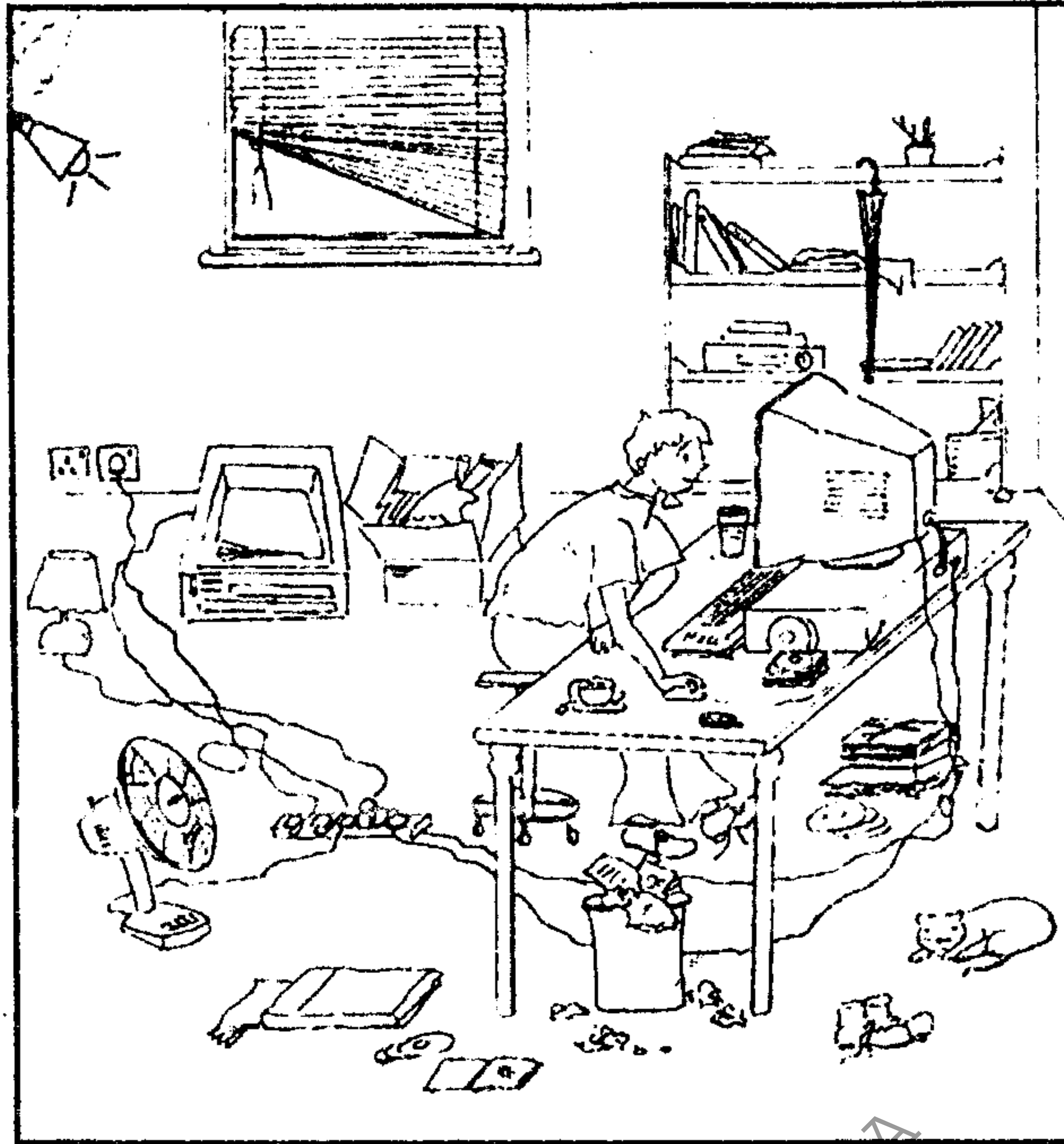
The employees of this organization are normally working on a basis of 40 hours per week (see D3 cell). The normal hourly rates of payment (**Hourly Rate**) for each employee is as indicated in the range D5:D10 of the worksheet. Saturdays and Sundays are considered as extra working days and the overtime (**OT Rate**) is calculated at $1\frac{1}{2}$ of the normal hourly rate. After calculating the grand total (**Grand Total**), the accountant draws out that amount in cash from the bank.

- (i) State the formula that should be written to cell E5 in order to calculate the rate of over time (**OT Rate**). (Your formula should produce the values indicated in column E when it is copied to E6:E10 cell range.)
- (ii) Using cell references only, state the formula that should be written to cell F5 in order to calculate the hours of overtime (**OT Hrs.**). (Your formula should produce the values indicated in column F when it is copied to F6:F10 cell range.)
- (iii) Using cell references only, state the formula that should be written to cell G5 in order to calculate the total payments (**Total Pay**). (Your formula should produce the values indicated in column G when it is copied to G6:G10 cell range.)
- (iv) Using cell references only, state the formula that should be written to cell G11 in order to calculate the total money drawn from the bank for the payments (**Grand Total**).

4. (i) The given flowchart models the generation of some numbers in a certain range. Write the first **three** and the last **three** numbers that it generates.
- (ii) Write a pseudo-code that corresponds to the logic indicated by the flowchart.
- (iii) State how to modify the given flowchart to display the number sequence 1, 4, 9, 16, 25, 36, 49.



5. The given diagram shows an unorganized working environment of a computer user.
Refer the diagram to answer the given questions.



- (i) List **three** factors that may badly affect the health of the user.
 - (ii) List **three** factors that may lead to safety risks of the user.
 - (iii) Indicate separately, the ways by which the health and safety risks you have identified could be eliminated.
6. Write brief accounts on any **three** of the following titles.
- (i) The inclusion of Information and Communication Technology (ICT) as a subject in the advanced level curriculum.
 - (ii) Problems and challenges faced by students while learning ICT in school.
 - (iii) Exploiting ICT to develop tourism in Sri Lanka.
 - (iv) The advantages of computerizing the process of issuing vehicle licences.

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