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

80 | E | I, II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2023(2024)
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2023(2024)
General Certificate of Education (Ord. Level) Examination, 2023(2024)

තොරතුරු හා සන්නිවේදන තාක්ෂණය	I, II
தகவல், தொடர்பாடல் தொழில்நுட்பவியல்	I, II
Information & Communication Technology	**I, II**

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

අමතර කියවීම් කාලය	- මිනිත්තු 10 යි	**Use additional reading time to go through the question paper, select the questions and decide on the questions that you give priority in answering.**
மேலதிக வாசிப்பு நேரம்	- 10 நிமிடங்கள்	
Additional Reading Time	**- 10 minutes**	

Information & Communication Technology I

Instructions:

* *Answer **all** questions.*
* *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 (×) on the number corresponding to your choice in the answer sheet provided.***
* *Further instructions are given on the back of the answer sheet. Follow them carefully.*

1. Following four computers of the **same brand** are available at four different shops for the **same price**. Each of them has a 1 TB hard disk, 1 VGA port and consumes the same amount of electricity. Which one is most suitable to buy?
(1) Processor: 2.9 GHz, Cache: 6MB, RAM: 4GB, 4 USB ports
(2) Processor: 3.1 GHz, Cache: 6MB, RAM: 4GB, 4 USB ports
(3) Processor: 3.6 GHz, Cache: 12MB, RAM: 8GB, 8 USB ports
(4) Processor: 3.6 GHz, Cache: 16MB, RAM: 8GB, 8 USB ports

2. Which of the following devices could be used to capture English text from printed documents?
(1) Bar Code Reader (2) Magnetic Ink Character Reader (MICR)
(3) Optical Character Recognition (OCR) device (4) Optical Mark Recognition (OMR) device

3. Which of the following is a solid state device?
(1) Compact Disk (2) Hard Disk Drive (3) Magnetic Tape Drive (4) USB Flash Drive

4. Which of the following executes the instructions of computer programs?
(1) Cache (2) Central Processing Unit (CPU)
(3) Hard Disk (4) Random Access Memory (RAM)

5. Which of the following is required to network four computers in a star topology?
(1) a firewall (2) a modem (3) a server (4) a switch

6. Which of the following is the octal equivalent of decimal 216_{10}?
(1) 40_8 (2) 43_8 (3) 73_8 (4) 330_8

7. Which of the following is the decimal equivalent of binary $1000\ 1000_2$?
(1) 24_{10} (2) 136_{10} (3) 272_{10} (4) 1024_{10}

8. Which of the following is the hexadecimal equivalent of octal 1572_8?
(1) $DE8_{16}$ (2) $37A_{16}$ (3) 3710_{16} (4) 12562_{16}

9. One Terabyte (1 TB) is equal to
(1) 1024 KB. (2) 1024 × 1024 KB.
(3) 1024 × 1024 × 1024 KB. (4) 1024 × 1024 × 1024 × 1024 KB.

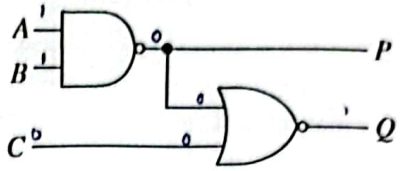
[see page two

10. Which of the following statements are true regarding the ASCII coding system?

A - Characters E and e are represented using the same code.
B - # and $ symbols have different codes.
C - Sinhala characters do not have ASCII codes.

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

11. According to the adjacent logic circuit, what will be the respective outputs at *P* and *Q* when *A*, *B* and *C* inputs are respectively 1, 1 and 0?



(1) 0, 0 (2) 0, 1 (3) 1, 0 (4) 1, 1

12. What is the shortcut key combination in a word processing software to select the entire document?

(1) Ctrl + A (2) Ctrl + B (3) Ctrl + C (4) Ctrl + V

13. Which of the following icons in a word processing software can be used to align the left and right sides of a text parallel to each other?

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

14. Which of the following statements are correct regarding a word processing software?

A - It lets the user to add tables and images to a document.
B - Format Painter tool ( ) lets a user to copy formatting like *font style* and apply it to other pieces of text.
C - *Landscape* and *Portrait* are the two page orientations available.

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

15. Which of the following icons could be used to format a character as a subscript in a Word Processing Software?

(1) A (2) A^2 (3) A_2 (4) U

- To answer questions **16** and **17**, consider the following spreadsheet segment which contains the ICT marks obtained by students for three term tests.

	A	B	C	D	E
1	Name	1st Term	2nd term	3rd Term	
2	Shanaya	57	70	absent	
3	Nethmi	45	55	66	
4	Asjath	75	68	absent	
5	Bimsara	45	57	70	
6	Vasuki	56	67	78	
7	MalRaj	45	35	55	
8	Vasanthar	40	60	75	
9					
10					

16. What is the formula to be entered into cell D9, to find the number of students who appeared for the 3rd term test?

(1) =COUNT(B2:D8)
(2) =COUNT(D2:D8)
(3) =SUM(B2:D8)
(4) =SUM(D2:D8)

17. What is the correct formula to be entered into cell E2 to calculate the average mark of Shanaya for the three term tests?

(1) =(57+70+absent)/3
(2) =(B2+C2+D2)/3
(3) =AVERAGE(B2:D2)
(4) =SUM(B2:D2)/3

18. Which of the following formulas (I, II, III) contain valid cell addresses?

I: X1+Y$1 II: P$1+Q2 III: M2*N$2

(1) I and II only (2) I and III only (3) II and III only (4) All I, II and III

[see page three

- Questions **19** to **22** are based on the following four partially shown database tables that are designed for a bus seat reservation system.

BUS_STATION

Bus_station_code	Name
W1	Colombo
S1	Galle
N1	Jaffna

ROUTE

Note: Routes are identified by the Route_code. Many routes can start from the same bus station and many routes can end at the same bus station.

Route_code	From_bus_station_code	To_bus_station_code
1_1	W1	N1
2_1	W1	S1

ROUTE_INSTANCE

Note: Assume there is only one trip per route per day.

Route_code	Date	Available_seats
1_1	01-07-2024	23
1_1	02-07-2024	35
2_1	01-07-2024	34
2_1	02-07-2024	35

SEAT_RESERVATION

Note: Seat_number uniquely identifies a seat.

Route_code	Date	Seat_number	Passenger_name	Passenger_phone
1_1	01-07-2024	1	ABC Fernando	0111111111
1_1	01-07-2024	2	DEF Sivarajah	0333333333
2_1	01-07-2024	1	IJK Meerasahib	0222222222

19. What is most suitable to be the primary key of the **ROUTE** table?
(1) From_bus_station_code
(2) Route_code
(3) To_bus_station_code
(4) Route_code + From_bus_station_code

20. What is most suitable to be the primary key of the **SEAT_RESERVATION** table?
(1) Route_code
(2) Route_code + Date
(3) Route_code + Seat_number
(4) Route_code + Date + Seat_number

21. What is a foreign key in this database?
(1) Bus_station_code in the BUS_STATION table
(2) Date in the ROUTE_INSTANCE table
(3) Seat_number in the SEAT_RESERVATION table
(4) To_bus_station_code in the ROUTE table

22. If it is decided to add a description to each route (e.g., Kurunegala-Anuradhapura-Vavuniya to Route 1_1), to which table should that field be added?
(1) BUS_STATION
(2) ROUTE
(3) ROUTE_INSTANCE
(4) SEAT_RESERVATION

23. The roots of a quadratic equation $ax^2 + bx + c = 0$ are found by the equation $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. If a program is to be written to use this equation to find roots, what would be the inputs to this program?
(1) a, b, c
(2) a, b, b^2, c
(3) x, a, b, c
(4) x, a, b, b^2, c

[see page four

24. Suppose you are designing an algorithm to input an employee's age, check if that employee is eligible for retirement and output the result. The age of retirement is 60 years. Which of the following control structures would be most appropriate to use in this algorithm?

(1) Selection only (2) Sequence only
(3) Iteration and selection only (4) Sequence and selection only

25. Consider the following P, Q and R logical expressions:

P: (A >= 10) AND NOT (B > 30)
Q: (A < 10) OR (B < 30)
R: (A <> 10) OR (B = 30)

If above A and B contain the values 10 and 10 respectively, which of the following represents the correct outcomes of P, Q and R respectively?

(1) false, false, true (2) false, true, true (3) true, true, false (4) true, true, true

26. Suppose you want to store the full name of a person in a variable. What would be the most suitable data type for that variable?

(1) Boolean (2) Char (3) Integer (4) String

27. When operator precedence in Pascal is considered, what will be the result of 4–1*3+5?

(1) –4 (2) 6 (3) 14 (4) 24

28. In which of the following instances would you use an `if-then-else` selection structure in structured programming?

(1) to assign a value to the variable `age` and print the value stored in `age`
(2) to validate a password entered by a user
(3) to calculate the sum of first 100 integers
(4) to repeat a task for 15 times

● Questions **29** and **30** are based on the Pascal codes shown in figures 1 and 2 respectively.

```
program whileTest;
var
   a, sum: integer;

begin
   sum := 0; a := 1;
   while  a < 5  do
   begin
      sum := sum + a;
      a := a + 1;
   end;
   writeln(sum);
end.
```

Figure 1

```
program looptest;
var i,j : integer;
begin
   for i := 1 to 2 do
   begin
      for j := 1 to 2 do
         write(i,j);
   end;
end.
```

Figure 2

29. What would be the output if the code shown in **Figure 1** is executed?

(1) 0 (2) 10 (3) 11 (4) 15

30. Which nested control structure is visible in the Pascal code of **Figure 2**?

(1) iteration inside iteration (2) iteration inside selection (3) selection inside iteration (4) selection inside selection

31. A program written in which of the following programming languages can be executed directly by the CPU of a computer?

(1) Assembly (2) C (3) machine language (4) Pascal

32. Which of the following statements are true?

A - It is important to do 'Identification of requirements' correctly in both waterfall and iterative incremental models.
B - It is suitable if 'integration testing' is done only when the 'unit tests' are successful.
C - 'System testing' should be done only after 'acceptance testing'.

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

[see page five

33. Which of the following will best help the users of a **proposed system** to get an idea of its features and how it will appear?
(1) Interviews with system developers
(2) Questionnaires from system developers
(3) Sample reports / files given to system developers
(4) The prototypes of the proposed system shown by system developers

34. Consider the following steps to send an email using a service like Gmail:
A - Login to the email account
B - Click 'Send'
C - Click 'Compose' or 'New'
D - Type the subject and the message
E - Type the 'To' address
Which of the following gives the correct order of the above steps?
(1) A → B → C → D → E
(2) A → C → E → D → B
(3) C → B → E → D → A
(4) C → D → E → A → B

35. Which of the following are true regarding the use of a particular software through SaaS of cloud computing?
A - The client needs an Internet connection to use the software.
B - The client needs to design and code the software.
C - An agreement with the cloud service provider is required to use the software.
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

36. Which of the following is **essential** to connect a computer to the Internet?
(1) a fiber optic connection
(2) an uninterruptible power supply
(3) a web browser
(4) a service from an Internet Service Provider

37. Which of the following statements are true regarding *raster images*?
A - If an image uses n bits to keep information about each pixel, then that image is capable of displaying 2^n colours.
B - *Image resolution* refers to the number of pixels that exist within an image.
C - A graphic with a large number of bits per pixel and a high resolution has a small file size.
(1) A only (2) B only (3) A and B only (4) A and C only

38. Which of the following statements are true?
A - accdb is an example for a video file type.
B - MP3 is an example for an audio file type.
C - The frames between two key frames in an animation are called tween frames.
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

39. You have been assigned to design a web page to be used by the out-patients to reserve times to meet doctors at a clinic of a government hospital. Which of the following is **not essential** to be included on that page?
(1) A video showing the doctors treating the patients in the clinic
(2) Facility to view times available for reservation on a selected date
(3) Facility to enter patient's name, NIC number and phone number to complete a reservation
(4) Information on dates and times the clinic is open and location of the clinic

40. Consider the following statement taken from an HTML file:
<img src="dunhinda.jpg" alt="Dunhinda" width="100" height="200" align="right">
Which of the following statements are **not** true with respect to it?
(1) The *dunhinda.jpg* image is displayed if it exists.
(2) The *Dunhinda* text is displayed if *dunhinda.jpg* image file is not available.
(3) Either the *dunhinda.jpg* image or *Dunhinda* text will always appear at the right on the web page.
(4) The *Dunhinda* text will always appear on the right of the *dunhinda.jpg* image.

* *

[see page six

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இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

80 | E | I, II

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තොරතුරු හා සන්නිවේදන තාක්ෂණය I, II
தகவல், தொடர்பாடல் தொழில்நுட்பவியல் I, II
Information & Communication Technology I, II

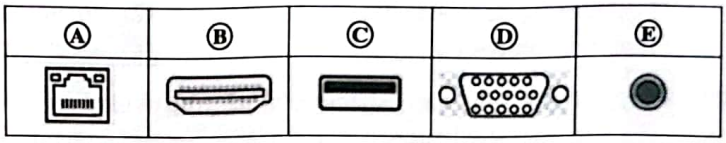
Information & Communication Technology II

* *Answer **five (05)** questions only, including the **first question** and **four** others.*
* *First question carries **20** marks and each of the other questions carries **10** marks.*

1. (i) The song database of a radio station has a unique identifier (**Song_id**) for each song. In addition, the song title and the details of its copyright owners are also stored. For each instance a song is played, each owner of that song is to be paid Rs. 100. The radio station enters the **Song_id** of the songs that it plays to the database each day so that the owners of the songs can be duly paid at the end of each month.

Write down **two** different pieces of information that could be obtained from this system after the necessary data processing.

(ii) Five ports on a computer labelled as Ⓐ – Ⓔ are shown in the figure.



(*a*) Write down the label of the port which can be used to connect a projector with an HDMI cable.

(*b*) Write down the label of the port that can be used to connect an RJ45 cable.

(iii) Convert 85_{10} to its binary equivalent.

(iv) Draw the logic circuit relating to the boolean expression $P = \bar{C} + A\bar{B}$ including **AND**, **NOT** and **OR** gates only.

(v) For each of the blanks labelled A to D of the following paragraph, pick and write down the suitable replacement from the two terms given near it within parentheses.

When the computer is switched on the ...A... (*application software*, *BIOS*) *runs to check all the hardware and confirm that they are functioning properly. Then the operating system is loaded into the* ...B... (*hard disk*, *memory*). *It sets up the initial environment for running processes on the computer. Then it provides an interface for the user to log in. Once logged in, the user can start many processes. The* ...C... (*anti-virus software*, *operating system*) *runs as and when necessary to fulfil the various requirements of these processes and do other management activities of the* ...D... (*BIOS*, *computer*).

(vi) Some formatting options available in a word processing software are shown below:

Option	**B**	*I*	U	~~S~~	¶	A	Aa
Label	**P**	**Q**	**R**	**S**	**T**	**U**	**V**

Write down the labels of the any **two** options that have been used to do the following sentence formatting.

Sentence before formatting: Never stop learning, because life never stops teaching.

Sentence after formatting: *NEVER STOP LEARNING, BECAUSE LIFE NEVER STOPS TEACHING.*

[see page seven

(vii) Indicate whether the following four statements labelled **A** to **D** regarding presentations / presentation software are true or false by drawing ✓ or ✗ symbols respectively against each label.



A - The slide layout can be used to create a slide with a title, some text bullets and two images.

B - Video content cannot be added to an electronic presentation.

C - It is good to add a lot of long sentences to each slide.

D - Before making the slides, it is suitable to plan the presentation considering its purpose, the time duration and the expected audience.

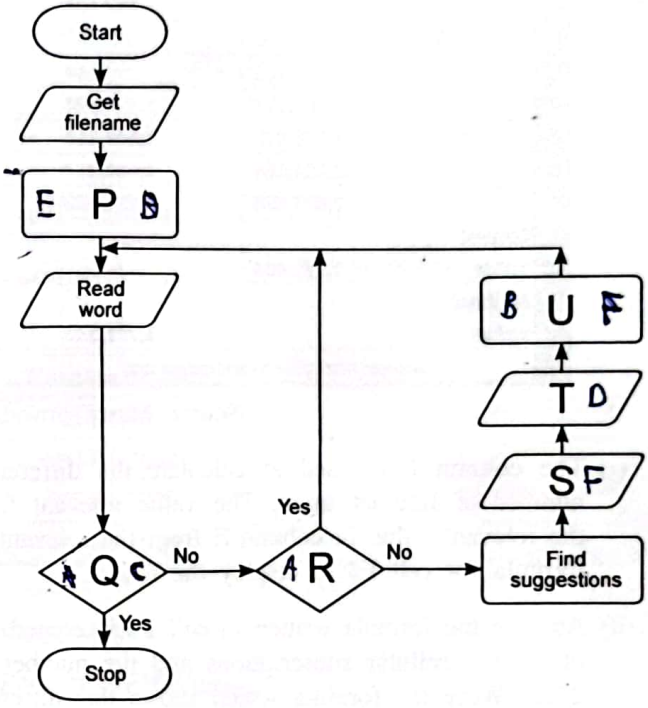
(viii) A program is required to check the spellings in a text file named by the user. The program is to offer suggestions for incorrect words and then do what the user wants with respect to them.

A flowchart drawn for the purpose is shown at right.

Write down the labels of the correct replacements for P to U choosing from the given list.

List :

A – Is the word correct?
B – Do what user wants
C – End-of-file?
D – Get user input
E – Open file
F – Print suggestions



(ix) (*a*) 'Identification of requirements' is the first step in the *System Development Life Cycle* (*SDLC*). List its 2nd, 3rd, 4th and 5th steps in the correct order.

(*b*) In which step of SDLC is the use of prototypes most productive?

(x) Consider the email header given below.

To: riyas@example.com
Cc: raja@abc.com, saman@example.com
Bcc: sheron@abc.com

Indicate whether the following statements labelled **A** to **D** are true or false by drawing ✓ or ✗ symbols respectively against each label.

A - riyas is the primary recipient of the email.

B - raja will know that sheron also received the email.

C - riyas can see that the email was also sent to saman.

D - Everyone in the To and Cc fields can see each other's email addresses.

[see page eight

2. The following spreadsheet shows some statistics related to ICT usage of Sri Lanka for the period of 2014 – 2020.

	A	B	C	D	E	F
1			ICT Adoption of Srilanka in 2014-2020			
2	Year	Fixed telephone subscriptions	Fixed broadband subscriptions	Mobile cellular subscriptions	Number of Internet users	Difference of Mobile Cellular users and Internet users
3	2014	2,709,848	567,601	22,123,000	2,230,142	19,892,858
4	2015	3,287,676	625,917	23,899,642	2,581,740	21,317,902
5	2016	2,479,802	892,184	25,797,200	3,235,250	22,561,950
6	2017	2,603,178	1,220,504	28,199,084	4,580,952	23,618,132
7	2018	2,473,875	1,544,313	30,282,984	5,610,985	24,671,999
8	2019	2,291,464	1,666,317	28,352,588	6,278,403	22,074,185
9	2020	2,607,868	1,781,530	29,730,464	7,600,277	22,130,187
10	*Lowest value*	2,291,464				
11	*Highest value*		1,781,530			
12		Source: https://ourworldindata.org/				

Source: https://ourworldindata.org

(i) The column F is used to calculate the difference of mobile cellular subscriptions and the number of Internet users. The value relevant for the year 2014 is calculated by deducting the relevant value in column E from the relevant value in column D. Write down the suitable formula for cell F3 to display the result.

(ii) Assume the formula written in cell F3 is copied to the cell range F4:F9 to get the differences of mobile cellular subscriptions and the number of Internet users for the period of 2015 to 2020. Write the formula which shows this difference for the year 2019 (cell F8).

(iii) (*a*) What is the formula to be written in cell B10 to get the lowest value for fixed telephone subscriptions?

(*b*) What is the formula to be written in cell C11 to get the highest value for fixed broadband subscriptions?

(iv) Write down the labels of the following steps in proper order to format the numbers in the cell range B3:F11 as comma separated for every 1000.

Label	Description
A	Select 'Number' tab and select 'Number' under it
B	Click 'OK' button
C	Make Decimal places to 0 and click on the checkbox to activate 'Use 1000 separator'
D	Select the cell range B3:F11
E	Press right mouse button and select 'Format Cells'

(v) From column and pie charts, what is most suitable to compare the values across the four categories (B3:E9) over the period 2014 – 2020?

(vi) Assume that on a **different spreadsheet** the cell B4 contains the formula =$B3+B2. If this formula is copied to cell C5, write down the formula that would appear in cell C5.

[see page nine

3. Following are the partially shown relational database tables that are used to store information about students, courses and course enrolment in a university.

STUDENT

Student_id	First_name	Last_name
S1000	Saman	Perera
S1001	Raj	Selvam
S1002	Shane	Almeida
S1003	Moshin	Ahmed

COURSE

Course_id	Course_name	Credits	Department
C200	Programming	4	Computer Science
C201	Organic Chemistry	3	Chemistry
C202	English Literature	3	English
C203	Molecular Biology	4	Biology
C204	Web Development	3	Computer Science

ENROLMENT

Student_id	Course_id	Enrolment_date
S1001	C200	05-01-2024
S1002	C203	04-01-2024
S1001	C204	05-01-2024
S1003	C202	06-01-2024

(i) (*a*) Write down the primary key of **ENROLMENT** table.

(*b*) Write down the foreign key(s) of **ENROLMENT** table.

(ii) Which tables need to be updated to accommodate the following?

(*a*) the *Computer Science Department* introducing a new course named *Cyber Security*

(*b*) a new student joining the University and enrolling in the *Organic Chemistry* course

(iii) The *Chemistry Department* introduces a new course named *Inorganic Chemistry* (CourseID: *C228*) having 3 credits. *Saman Perera* enrolls in that course on *08-01-2024* and *Moshin Ahmed* enrolls in it on *09-01-2024*. Write down the new records to be added to the relevant tables for the above change.

Note: Use **only** the *table name* → (*field1 content*, *field2 content*, ...) format for each new record.
E.g., STUDENT → (S1000, Saman, Perera)

(iv) It is required to show the Course_ids of all courses enrolled by the student S1001. The course name also needs to be shown. Which tables need to be joined for this purpose?

(v) It is decided to add the name and the phone number of the teacher teaching each course to the new fields **Teacher_name** and **Teacher_phone** respectively. If a teacher could be assigned to teach several courses, recommend the most suitable table addition/change for this purpose.

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4. The administration of a school decides to calculate the body mass index (BMI) of each student to find the '*underweight*', '*normal*', '*overweight*' and '*obese*' students.

The BMI of a person weighing w kilograms and having a height of h metres is calculated using the following formula:

$$BMI = w / h^2$$

E.g., The BMI of a person weighing 90 kg and 2 m tall = $90/2^2 = 90/4 = 22.5$

Then the person's weight status is found according to the following table:

BMI	Weight status
BMI < 18.5	Underweight
18.5 <= BMI < 25.0	Normal
25.0 <= BMI <= 29.9	Overweight
BMI > 29.9	Obese

The school administration wants a program to find the weight status of all the 400 students in the school. In this program, for each student, the name, grade, weight in kilograms and height in metres should be taken as inputs. Then the student's BMI should be computed. Finally, the name, grade, the BMI and weight status (underweight, normal, overweight or obese) of the student should be printed.

A pseudocode skeleton that aids in writing this program is given below. Write down the suitable replacements for the blanks in it labelled from **A** to **G**.

Note: The replacement to one of the blanks requires multiple lines.

```
BEGIN
    Count = 1
    WHILE Count < .....A..400
    Get .....B..... name , grade, weight, height
        .....C..weight / height^2
        OUTPUT name, grade, bmi
        IF .....D..BMI < 18.5
            OUTPUT "Underweight"
        ELSE
            IF .....E..18.5 <= BMI < 25.
                OUTPUT "Normal"
            ELSE
                .....F.....
            ENDIF
        ENDIF
        .....G..End If
    ENDWHILE
END
```

If 25.0 <= BMI <= 29.9
Output 'Overweight'
Else
Output 'Obese'

5. (i) Match the descriptions labelled **P** to **S** with the correct terms from the list given and write the relevant term against each label using the **label → term** format.

Label	Description
P	A protocol for electronic mail transmission
Q	A protocol used for transmitting web pages over the Internet
R	A unique identifier for a device on the Internet
S	The address of a specific web page

List: {DNS, email address, HTTP, IP address, SMTP, URL}

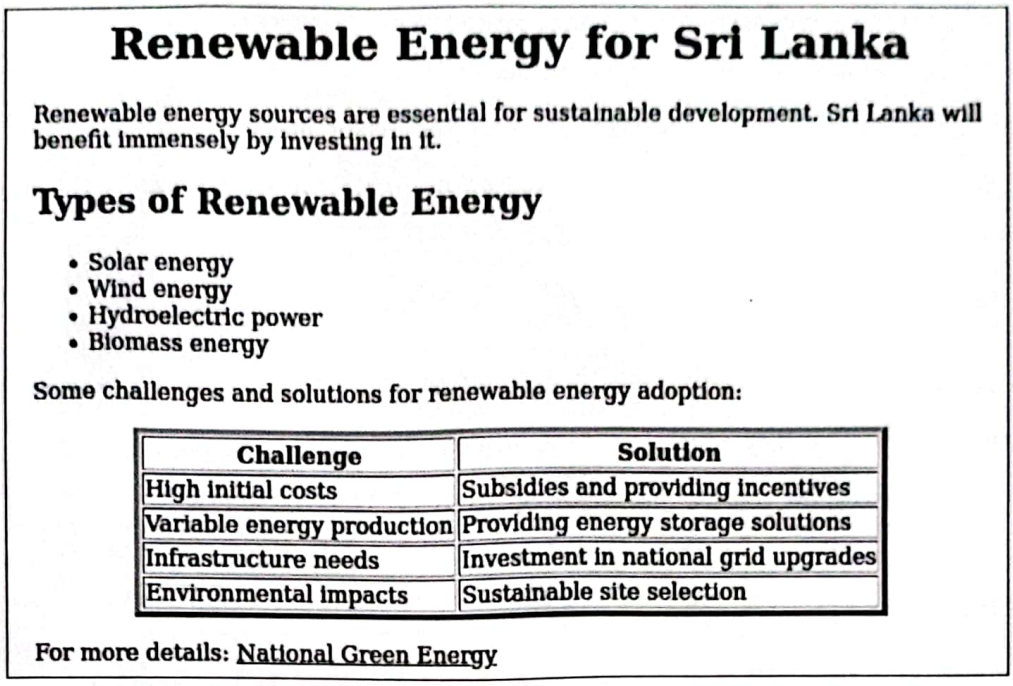
(ii) Choosing from the examples given in the list, write down the **label** of the suitable example for each of the items numbered from **1** to **6** using the **number → label** format.

1 – protocol **2** – IP Address **3** – Email Address **4** – Domain Name **5** – URL **6** – An operating system

List: {**A** – 192.168.1.1, **B** – https://www.example.com, **C** – Java, **D** – john.doe@example.com, **E** – SaaS, **F** – TCP/IP, **G** – xyz.example.com, **H** – Ubuntu}

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(iii) The HTML source of the web page shown in **Figure 1** is given in **Figure 2** with certain missing tags labelled ❶ to ⓾.



Renewable Energy for Sri Lanka

Renewable energy sources are essential for sustainable development. Sri Lanka will benefit immensely by investing in it.

Types of Renewable Energy

- Solar energy
- Wind energy
- Hydroelectric power
- Biomass energy

Some challenges and solutions for renewable energy adoption:

Challenge	Solution
High initial costs	Subsidies and providing incentives
Variable energy production	Providing energy storage solutions
Infrastructure needs	Investment in national grid upgrades
Environmental impacts	Sustainable site selection

For more details: National Green Energy

Figure 1: Web page

```
<html>
<head> <❶>Renewable energy </❶> </head>
<❷>
<❸><h1>Renewable Energy for Sri Lanka</h1></❸>
<p>Renewable energy sources are essential for sustainable development. Sri Lanka will benefit
    immensely by investing in it. </p>

<❹>Types of Renewable Energy</❹>
<❺>
    <❻>Solar energy</❻>
    <❻>Wind energy</❻>
    <❻>Hydroelectric power</❻>
    <❻>Biomass energy</❻>
</❺>
<p>Some challenges and solutions for renewable energy adoption:</p>
<❼ border="4" align="center">
<tr><❽>Challenge</❽><❽>Solution</❽></tr>
<tr><❾>High initial costs</❾><❾>Subsidies and providing incentives</❾></tr>
<tr><❾>Variable energy production</❾><❾>Providing energy storage solutions</❾></tr>
<tr><❾>Infrastructure needs</❾><❾>Investment in national grid upgrades</❾></tr>
<tr><❾>Environmental impacts</❾><❾>Sustainable site selection</❾></tr>
</❼>
<p>
For more details: <⓾ href="http://greenenergy.gov.lk" > National Green Energy </⓾></p>
</❷>
</html>
```

Figure 2: HTML Source

Select the correct tags for the labels ❶ to ⓾ of **Figure 2** from the list given below. Write down each label number and the corresponding HTML tag.

List: {a, body, center, dl, h1, h2, head, li, link, ol, p, table, td, th, title, tr, ul}

[see page twelve

6. (i) A person is trying to decide whether to use the BMP format or the JPG format to save an image.

(*a*) Which format will take lesser storage space? Why?

(*b*) Which format will have better image quality?

(ii) Write down the main difference between raster and vector image files.

(iii) (*a*) Some icons of *GIMP* software are given below. Write down what each could be used for.

Label	A	B	C	D
Icon				

(*b*) For what purpose can the *Clone* tool in *GIMP* be used?

(iv) What are meant by 'key frames' in an animation?

(v) For what purpose do you use the following icons of *Audacity* software?

Label	P	Q	R
Icon			

(vi) Consider the following A and B parts of the *Windows Movie Maker* interface:

A - Preview/player pane

B - Timeline stage

Assume that the above software is started and all the components (e.g., images, audios etc.) that the video must consist of are selected. From **A** and **B**, which will show the arrangement of these components?

7. (i) Write down **three** character types that a strong password should consist of. Give **another** characteristic that will make a password strong.

(ii) What is 'plagiarism'?

(iii) Protecting the electronic items that we already have is one way of stopping them being added to e-waste. Write down **two** steps that you could take to ensure that the hardware of the desktop computer that you use will serve you without problems for a long time.

(iv) Write down **one** thing that you could do to protect the software on your computer.

(v) Give **one** good habit that a person could follow with respect to each of the following:

(*a*) To make it easier to find the files that he/she has stored on his/her computer

(*b*) To prevent the hard disk becoming full

(vi) A good posture is important when using a computer. Write down **one** guideline that one could follow with respect to the computer screen placement and one's eye level.

(vii) It is suggested to create a citizen database containing the details of all citizens living in a district. The details to be entered for a citizen include his/her name, address, birth date, gender, NIC number and the NIC numbers of his/her parents. The database is to be updated based on births, deaths and citizen migrations.

Write down **one** benefit of this proposed system.

* * *