

# Minuwangoda Education Zone

## Second term examination - 2023

Information & Communication Technology I, II

### Grade 10

### Part 1 - 1 hour

**Answer all the questions. Underline the correct answer.**

(1) Quality information should have

- i) Relevance, accuracy, cost minimization, well-planned
- ii) Incompleteness, up-to-date, cost-effectiveness, relevance
- iii) Minimum cost, timeliness, storability, accuracy
- iv) Completeness, cost minimization, relevance, dependability

(2) A service which is not provided by a government to other states is,

- i) Government Rules and Regulations
- ii) State Security information
- iii) Details of credit facilities
- iv) Map of Sri Lanka

(3) Which device is not a pointing device

- i) Touch sensitive screen ( touch screen)
- ii) Lightpen
- iii) Joy Stick
- iv ) Display (monitor)

(4) What is true about a learning management system

- i) Ability to engage with co-curricular activities through videos
- ii) Inability to separate periods
- iii) Difficulty in using e-mail
- iv) Parents are not being able to know their children's educational progress from home

(5) Electrocardiogram Machine ( ECG ) is used to

- i) Display of heart function on a computer screen
- ii) Obtaining detailed diagrams of the internal parts of the body
- iii) Recording the waves produced by the electrical impulses of the heart
- iv) Separate 3D imaging of internal parts of the body

(6) The characteristic belongs to the fifth generation is,

- i) Use of advanced computer languages for coding
- ii) Use of operating systems with graphical interfaces
- iii) Non-recognition of letters
- iv) Voice recognition based on AI (Artificial Intelligence )

- (7) The type of computer used in banking systems and medium-sized institutions is,
- i) Mainframe computers
  - ii) Microcomputers
  - iii) Mini computers
  - iv) Supercomputers
- (8) The type of signal used in speedometers, road lamps with sensors and weather gauges etc.
- i) Digital signals
  - ii) Mixed signals
  - iii) Binary signals
  - iv) Analog signals
- (9) What is the commonly used device for Computer Aided Design (CAD)
- i) Optical Character Recognition (OCR)
  - ii) Light Pen
  - iii) Optical Mark Recognition (OMR)
  - iv) Barcode Reader
- (10) \* Reduction in power consumption  
\* Development of flat screen display technology  
\* Placing solutions between two flexible electrodes
- The type of computer screen produced according to the above characteristics is,
- i) Screen with cathode ray tube
  - ii) Light emitting diode
  - iii) Multi media projector
  - iv) Liquid crystal display
- (11) A characteristic seen in microwave transmission is
- i) Centers must be visible to each other as the data travels in one line.
  - ii) Use Wi-Fi, Bluetooth
  - iii) It is not necessary to consider the landscape of the area.
  - iv) In satellite technology microwave data transmission is not using
- (12) The type of computer networks that are in bank networks, networks of institutions with branches, university networks are,
- i) Wide Area Networks (WAN)
  - ii) Metropolitan Area Networks (MAN)
  - iii) Local Area Network (LAN)
  - iv) Server/client network
- (13) The most significant and least significant bits of the binary number, 0.00110 are respectively
- i) 1 and 1
  - ii) 0 and 0
  - iii) 1 and 0
  - iv) 0 and 1
- (14) When the decimal value 478 is converted into a hexadecimal number, the answer is,
- i) 1 CD
  - ii) 1 DE
  - iii) 1 ED
  - iv) 1 DC
- (15) Below are some statements between data capacity and data access speed.
- A) Access speed is slow when data capacity is small
  - B) When the data capacity is large, the access speed is slow
  - C) Access speed is faster when the data capacity is larger
  - D) Access speed is faster when the data capacity is smaller
- Among the above statements, the false statement or statements are,
- i) B only
  - ii) A and C only
  - iii) C only
  - iv) B and D only

(16) A coding system that is not using in computers

- i) ASCII                      ii) EBCDIC                      iii) ANSI                      iv) Unicode

(17) The minimum number of bits required to represent a hexadecimal number is,

- i) 16                      ii) 8                      iii) 4                      iv) 3

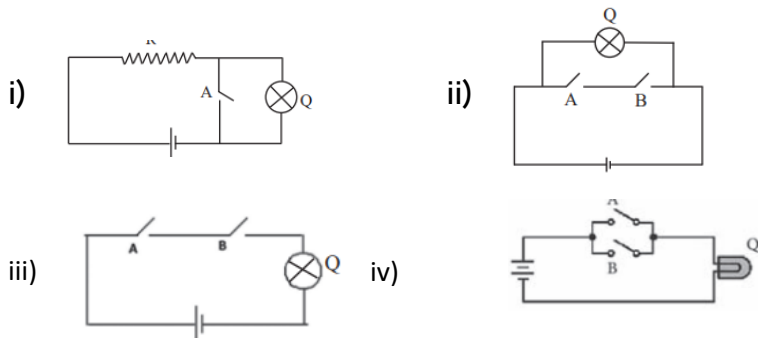
(18) Which of the following selections shows the descending order of the given four numbers?

- 1)  $76_8, 52_{10}, 101010_2, 1C_{16}$                       2)  $52_{10}, 101010_2, 1C_{16}, 76_8$   
 3)  $76_8, 101010_2, 1C_{16}, 52_{10}$                       4)  $101010_2, 1C_{16}, 52_{10}, 76_8$

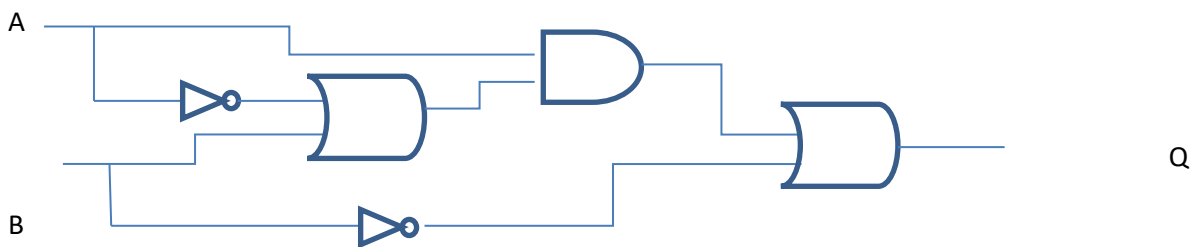
(19) A student intends to eat dhal ( C ) and coconut sambol ( D ) with bread ( A ) or string hoppers ( B ) for breakfast . The logical expression that can represent the above incident is,

- i)  $(A + B) . (C + D)$                       ii)  $(A . B) + (C + D)$                       iii)  $(A . B) + (C + D)$                       iv)  $(A + B) . (C.D.)$

(20) Which figure shows the balanced circuit of NAND gate?



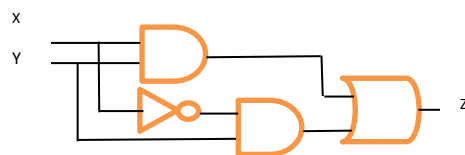
(21) Select the Boolean algebraic expression corresponding to the logic circuit shown below.



- i)  $\bar{A} + (A . B) + B$                       ii)  $A . (\overline{A.B}) . B$                       iii)  $A . (\bar{A} + B) + \bar{B}$                       iv)  $\bar{A} . (\bar{A} + B) . B$

(22) The output Z of this logic circuit equals to 1

- A. When only X is 1  
 B. When both X and Y are 0  
 C. When both X and Y are 1  
 D. When only Y is 1



What is / are the correct statement/ statements,

- 1) B                      2) A and D                      3) D                      4) C and D

(23) A student select Information Technology or Sinhala Literary Arts with Tamil subject as his grade 10 bucket subjects. This incident is represented by

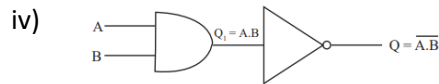
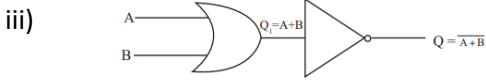
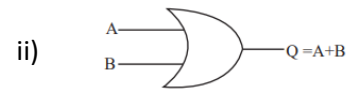
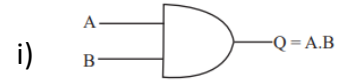
- 1) AND, OR                      2) OR, AND                      3) OR, OR                      4) AND, AND

(24) An integrated circuit doesn't contain

- i) Transistors                      ii) Resistors    iii) Capacitors                      iv) logic circuits

(25) The logic gate represented by the truth table given below is,

A	B	Q
0	0	1
0	1	0
1	0	0
1	1	0



(26) In which logic gate the output is false when any input is true

- i) OR                      ii) XOR                      iii) NOR                      iv) AND

(27) What is most suitable word processing software for mobile phones and tab computers?

- i) Libre office writer                      ii) document to go                      iii) office 365                      iv) word perfect

(28) The tools shown in the picture are called,

- i) Dialog box Launcher                      ii) Status Bar                      iii) Quick access toolbar                      iv) Title bar

(29) The functions that can be performed by the shortcut key Ctrl+H are,

- i) To select document                      ii) To replace words  
iii) To paste letters / objects                      iv) To cut letters / objects

(30) What is the tool that can not be used for Alignment in word processing software ?

- i) ii) iii) iv)

(31) A tool that can be used to design an invitation card, greeting card, letter to several people.

- i) Email (E mail)                      ii) Message (Massege)  
iii) Messenger                      iv) Mail merge

(32) The key used to activate English capital letters on the keyboard

- 1) Esc key                      2) Tab key                      3) Caps Lock key                      4) Ctrl key

(33)  Image A can be rotated to the direction of image B

- i) Rotate right by 90°      ii) Rotate left by 90°      iii) Flip Vertical      iv) Flip Horizontal

(34) Among the following manufacturing companies, which company that introduced an electronic spreadsheet software is,

- i) King soft      ii) Corel      iii) Apple      iv) Apache foundation

(35) Among the following functions, a function that cannot be used for a general calculation is,



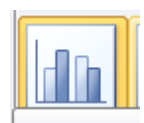

- i) = Average(A1/C1)      ii) = Average(A 1,B 1,C1)  
 iii) = Average(A1:A3,C1:C3)      iv) =Average(B1:C2)

(36) The formula for cell B3, to find the total number of marks obtained at the end of each over is

	A	B	C	D	E	F	G	H
1	මීටර ගණන	1	2	3	4	5	6	
2	ලබා ගත් ලකුණු	10	12	7	15	11	6	
3	මුළු ලකුණු		22	29	44	55	61	
4								
5								

- i) = sum( B2:G6)      ii) =sum(\$B2:B2)      iii) =sum(B2:\$B2)      iv) =sum(B\$2:G6)

(37) The type of graph that can be used to plot paired values is,

- i)       ii) iii)       iv)       

(38) A method that can be used to copy formula is,

- i) Using formula bar      ii) Using the copy and paste command  
 iii) Using cut and paste command      iv) Using format painter

(39) In a certain spreadsheet cell, the value displayed as 8.80 E+12 . The way in which that value is formatted,

- i) Scientific notation      ii) Decimal number notation  
 iii) Fraction number notation      iv) Expressing a number as a power

(40) The formula that can be entered in cell F3 of this spreadsheet is,

- 1) =Avg (B3:D3)      2) =Average (B3:E3)  
 3) =Average (B3:D3)      4) \*Average (B3:D3)

	A	B	C	D	E	F
1		පාසල් සන්නිකාල පරිහරණය				
2	අංශය	ජනවාරි	පෙබරවාරි	මාර්තු	එකතුව	සාමාන්‍යය
3	කලා	24	40	26	90	30
4	වාණිජ	20	18	25	63	21
5	විද්‍යා	28	21	17	66	22
6	වැඩිම පරිහරණය	28	40	26		
7	අඩුම පරිහරණය	20	18	17		
8						
9						

**Minuwangoda Education Zone**  
**Second term examination - 2023**  
**Grade 10**  
**Part II - 2 hours**  
**Answer 5 questions including the first question.**

(1) i) Below are some cases where information and communication technology is used in the field of education. Give an example for each of them.

- (a) In the classroom
- (b) Education at any place at any time
- (c) To assist the teacher in teaching
- (d) Learning Management

ii) Consider the following hardware devices

Keyboard , modem , flash drives , multimedia projector, printer , hard disk, monitor , mouse

Select and write the most suitable hardware for the following tasks from the above.

- (a) Presenting information to an audience at once
- (b) Connecting to the Internet
- (c) To obtain hard copy of a document
- (d) Use to data and information exchange

iii) If the ASCII code for character "a" is represented as 1100001, find the word represented by the bit pattern 1100011, 1100001, 1100010.

iv) Select the appropriate term from the brackets for the blanks below and write with each label on the answer sheet.

(14 , 7, 19, 176 , 8 )

a) what is the Octal value corresponding to hexa decimal "7E" .....

(b) What is the largest digit in Octal number system.....

(c) If  $1/2 \text{ MB} = 2^X \text{ bytes}$  , then the value of X is .....

(d) The corresponding value of "E" in Hexa decimal .....

v) Explain the difference between **Simplex Mode** and **Duplex Mode data** transmission giving one example for each.

vi) Below are some keyboard shortcuts used in word processing software. Identify them and indicate the function of each in front of the corresponding label.

- (a) ctrl+N
- (b) ctrl+O
- (c) ctrl+Home
- (d) ctrl+H

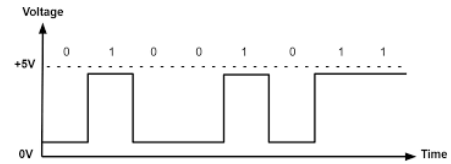
vii) Mention 2 software used to set words processing for mobile phones.

viii) Below are two types of signals used to operate the computer. Identify and name them.

(a)



(b)

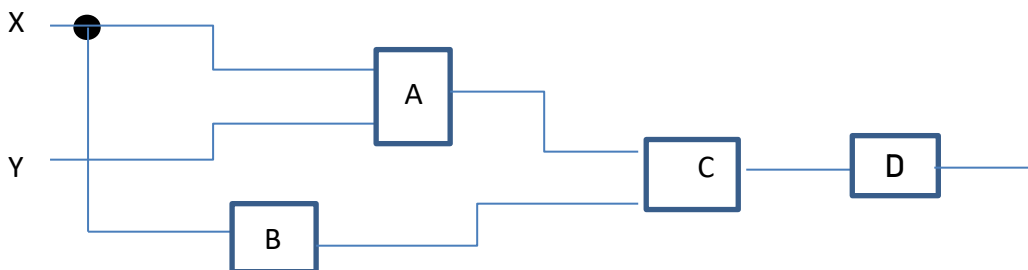


ix) Name 2 types of graphs that are most suitable for plotting the scores of all students on the mark sheet represented in the given spreadsheet section.

	A	B	C	D	E
1	StName	Maths	Science	ICT	Total
2	Lahiru	58	75	85	218
3	Damith	65	38	26	129
4	Kamani	98	67	53	218
5	Kumari	45	54	67	166
6					

x) Draw appropriate logic gates for slots A, B, C and D in the logic diagram represented by the following boolean expression. (Draw only the relevant label and logic gate)

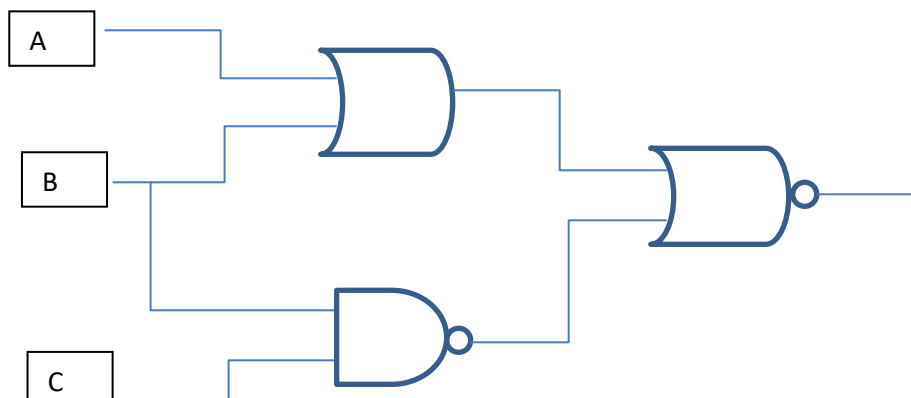
$$F = (X + Y) \cdot X$$



(2) i) Convert octal number 365 to hexadecimal number. Write down the relevant steps


ii) Write down the BCD value corresponding to the decimal number 249 .

iii) Write the Boolean statement for the following logic circuit and construct the truth table.



(3)

**රැකියා අවස්ථා සඳහා පරිගණක පාඨමාලා** A


B

පසලේ තොරතුරු තක්ෂණ අධ්යයනයේ පුරෝභවීයා යළිත් නව මුහුණුවරකින් පෙරමුණ ගනී. 100% ක්ම රඡීය ආයතනයක් වන උඩුගම්පෙළ සෙනරත් පරණවිතණ ජනිත පසලේ පිහිටුවාඇති කලඡීය පරිගණක සම්පත් මධ්යස්ථනය මෙහෙය වන තොරතුරු තක්ෂණ පඨමලඡ 2024 වසර 2 කණ්ඩයම ( AL) 2024/01/02 ආරම්භ කෙරේ. C

තොරතුරු තක්ෂණ පඨමලාකෙසමණ නිබුණත් ඔබ ඇඨි මෙම පඨමලඡ තොරා ගත යුත්තේ? F

- කලඡ අධ්යයන අධ්යක්ෂ තුමණග් නිල අත්සනින් යුත් වලංගු සහනිකයක් පඨමලඡ අවසනයේ සමු සිසුවෙකුටම ලඡබි.
- වසු සමනය කල විද්යගඡ පහසුකම් සහිතව පරිගණක භඡිතය
- ජ්රණයඡීක පුහුණුවේ දී උපදේශකවරුන්ගේ නිරන්තර අධීක්ෂණය හා උපකඡය
- මෙම පඨමලඡ මෙරට ඔිතමු සමන්ය ඩිප්ලෙඡ්ඡිකට සම තත්වයේ පවතින බවට රජයේ සහනිකය

**වඩි විස්තර සඳහාපහත වෙබ් අඩවිය බලන්න.** E

<http://www.minuidhl.sch.lk> D

- i) Name the tool used to format the text given as A.
- ii) Indicate the steps taken to show B as shown
- iii) What steps should be followed to make “උඩුගම්පෙළ සෙනරත් පරණවිතණ ජනිත පසලේ” as indicated in letter F ?
- iv) What kind of alignment is used in paragraph given as C ?
- v) The web address given as D is a hyperlink . How to remove the hyperlink from it ?

vi) E Which tool has been used to form the sentence given as?

vii) Which tool is used to list the points given in G ?

II) Name the tool used in word processing to send a designed invitation card, greeting card, letter for many people.

III) Which tool is useful for finding other words that has the same meaning in preparing documents?

(4) i) The head office of a school maintains a database containing information of teachers. The data base administrator downloads various information using the internet facility of this computer and when required, the information is retrieved using various storage devices.

(a) Classify the secondary storage devices according to the medium used to store their information. Give an example for each of those media.

(b) State 2 methods of protecting data and information in a computer.

(c) Computer networks can be classified according to location and user needs. Accordingly, name the type of computer network to which the Internet belongs.

ii) Mark ( ✓ ) if the following statements are true and mark ( × ) if they are false.

( a ) The provision of government information by government information center is a service provided by a government to citizens. (.....)

(b) Connecting with a teacher from home using the internet is **not** called Web Based Teaching (WBT) . (.....)

(c) The device used to record brain activity is known as EEG (.....)

(d) Radio frequency identification devices ( RFID) is installed on the body of animals is used to count and know their location. (.....)

(e) In 1642, a French scientist, Joseph Jacquard, invented a loom that worked with the punch card system. (.....)

(5) Mr. Ramesh is a retired teacher who lives in a rented house with his wife. He has two children who work abroad. They send US\$ 150 every month for their parents' monthly expenses. In addition to his pension, Mr. Ramesh conducts a private tutoring class. He gets monthly interest from the bank's fixed deposit. In C11 cell The prevailing exchange rate changes monthly.

Mr. Ramesh's monthly income and expenditure report is shown in the following spreadsheet.

	A	B	C	D
1	<b>මාසික ආදායම හා වියදම -නොවැම්බර් 2022</b>			
2	ආදායම් ප්‍රවර්ගය	ආදායම	වියදම් ප්‍රවර්ගය	වියදම
3	විලාම වැටුප	30000.00	ගෙවල් කුලී	25000.00
4	අමතර පන්ති	15000.00	ආහාර	50000.00
5	බැංකු තැන්පතු පොළිය	30000.00	ගමනාගමනය	10000.00
6	දරුවන්ගෙන් ලැබුණු මුදල්	52500.00	සෞඛ්‍ය	15000.00
7			පුද්ගලික	5000.00
8			සමාජ සේවා	5000.00
9			විවිධ	5000.00
10	මුළු ආදායම	127500.00		
11	මුළු වියදම	115000.00	විනිමය අනුපාතිකය %	350.00
12	ඉතිරිය	12500.00	දරුවන්ගෙන් ලැබුණු මුදල්	150.00

- I. Write down the formula for recording the money received from the children in cell B 6
- II. Write down the function to record the total income in cell B10
- III. Write down the function to record the total cost in cell B11
- IV. Write down the relevant formula for calculation of monthly balance B12
- V. Write down the other cell addresses that are updated upon the D 11 cell being updated

(6) i) The design and layout of computer connections in a network is known as network topology.

(a) Name 2 types of network topologies and write one advantage and one disadvantage of each.

(b) Briefly introduce client and Server networks.

ii) Classify the following communication media as guided media and unguided media.

- A. Twisted Pair
- B. Radio Waves
- C. Infrared
- D. Coaxial Cable
- E. Micro Waves
- F. Fiber Optics

iii) Choose the correct answer related to which of the following. ( Match the letter of x with the relevant computer port of y)

X	Y
a. Most of the input and output devices are connected to the computer.	HDMI port
b. RJ 45 connects computers on a computer network to network routers and network switches.	Parallel port
c. Use to connect the keyboard and mouse to the computer.	PS/2 port
d. Use to connect the modem to the computer system.	Network port
e. Use to connect the printer to the computer system.	Serial port
f. use to connect computer screen, multimedia projector, digital televisions and digital sound systems.	Universal Serial Bus ( USB port )