සියලුම හිමිකම් ඇවිරිණි/ முழுப் பதிப்புரிமையுடையது / All Rights reserved

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வடமேல் மாகாணக் கல்வித் திணைக்களம்
Provincial Department of Education - NWP

Grade 10	Second Term Test 2024	80 E I,II

INFORMATION AND COMMUNICATION TECHNOLOGY - PAPER 1

INDEX NO..... **TIME – 1 HOURS**

Answer all the questions.

1. Select the answer that includes only input devices from the following devices.
    1) Keyboard, barcode reader, monitor, multimedia projector
    2) Printer, Webcam, Keyboard, Barcode Reader
    3) Music, Keyboard, Barcode Reader, Monitor
    4) Multimedia projector, music, keyboard, keyboard

2. Which of the following statements are true about computer generations?

    A - Integrated circuits were introduced in the first generation of computers.

    B - The second and third generations of computers used high-level programming languages.

    C - Operating systems with graphical user interfaces (GUI) are used in the fourth generation of computers.

    1. A and C only.
    2. A and B only.
    3. B and C only.
    4. All A, B and C

3. Select the answer from the given storage components of a computer system in descending order of their capacity
    1) Hard disk, flash memory, random access memory, read-only memory, memory register
    2) Random Access Memory, Memory Register, flash Memory, Hard Disk, Read Only Memory
    3) Read-only memory, memory register, flash memory, hard disk , random access memory
    4) Memory register, random access memory, read-only memory, flash memory, hard disk

4. Consider the following scenarios.

    A. Telephone conversations
    B. Radio transmission
    C. Walkie talkie

Select the option that correctly indicates the data transmission methods that suit the above scenarios

1) simplex ,half duplex,full duplex
2) full duplex ,simplex ,half duplex
3) simplex , full duplex ,half duplex
4) half duplex ,simplex , full duplex

Past Papers Wiki

5. Consider the following statements.

A. The data transfer speed of fiber optic cables is higher than the data transfer speed of copper cables.

B. The data transmission speed of microwaves is higher than the data transmission speed of optical fibers.

C. Radio waves are used for data transmission using WiFi and Bluetooth technology.

Which of the above statements are true?

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

6. Which of the following statements is false?

1) Online shopping is possible using the internet.
2) Doctors can use computers to analyze patients' medical records.
3) Computers and internet can be used to get government services from home.
4) Online shopping is possible without using a communication connection to the Internet.

7. The technology that can be used to convert printed documents of many pages into scanned and editable computerized documents is

1) Optical Character Recognition (OCR)
2) Optical Mark Recognition (OMR)
3) Magnetic Ink Character Recognition (MICR)
4) Barcode Reader

8. Which of the following is correct regarding data and information?

1) Information is used to process data.
2) Processed data is called information.
3) Data is used in decision making.
4) Turning data into information cannot be done through computers.

9. Which of the e-Government relationships includes government-to-business (G2B) relationship?

1) Directory of Government Institutions, Forms, Government Rules, Circulars
2) Vehicle License Renewal, Sri Lanka Customs Details, Gazette Notification, Forms
3) Money payment services, banking information, commercial organization information
4) Vehicle License Renewal, Gazette Notification, Forms, Sri Lanka Customs Details

10. Which of the following shows the order of flow of instructions when a user executes a computer program installed on the computer?

1) Hard disk, cache memory, main memory, registers
2) Registers, Hard Disk, RAM, Main Memory, Registers
3) Hard disk, main memory, cache memory, registers
4) Main memory, hard disk, cache memory, main memory

11. Which of the following practices can be used to increase usable space on a hard drive without deleting existing files?

1) Hard disk partitioning.
2) Formatting the hard disk.
3) Copy some files from the hard drive to a flash drive.
4) Compression of files on the hard disk.

12. Which of the following is not an advantage of a computer network connected to the Internet?

1) Backing up files to a file server located on another computer network connected to the Internet.
2) Reduced risk of viruses and malware.
3) Web usage
4) Shared use of resources within the network

13. What decimal value is equivalent to 10000101_{BCD}?

1) 133
2) 85
3) 69
4) 411

14. Which of the following answers represents the descending order of the four numbers 65_8 , 00111100_2 , 64_{10} , $5A_{16}$

1) 65_8 , 00111100_2 , 64_{10}, $5A_{16}$
2) $5A_{16}$, 64_{10}, 00111100_2 ,65_8
3) $5A_{16}$, 00111100_2 ,64_{10}, 65_8
4) 00111100_2 ,65_8 , $5A_{16}$, 64_{10}

15. Select the numbers that are equivalent to the hexadecimal number $A9_{16}$.

A. 10101001_2
B. 109_{10}
C. 251_8
D. 169_{10}

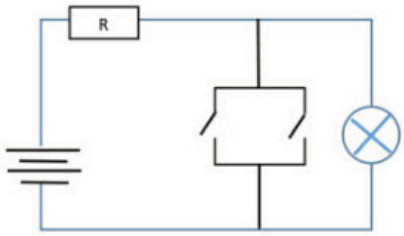
1) A only
2) A and D only
3) C and D only
4) A , C and D only

16. Consider the number 25X. Here x is the base of the number system. Which number system/s you have learned belong to the above number?

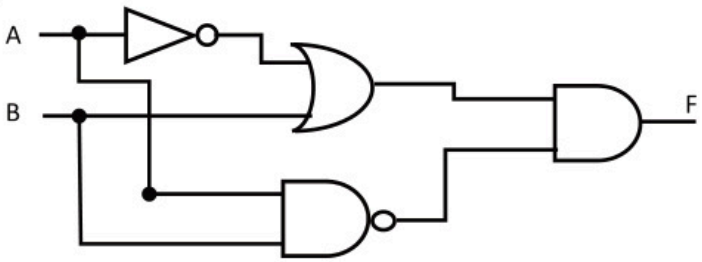
1) Hexadecimal, decimal and octal only.
2) Binary and Hexadecimal only.
3) Binary, octal, decimal and hexadecimal only.
4) Decimal only.

17. Which logic gate has the same function as the circuit shown below?

1) AND
2) NOT
3) NOR
4) NAND



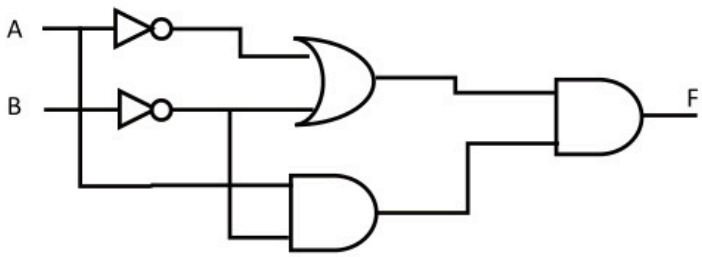
18. Select the Boolean expression corresponding to the output F of the logic circuit shown in the figure below.



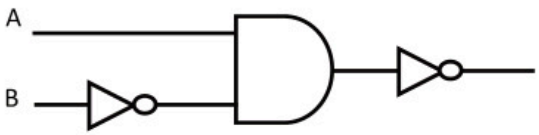
1) $(\bar{A}.B).(\bar{A}+\bar{B})$
2) $(\bar{A}+B)+(\bar{A}.\bar{B})$
3) $(\bar{A}+B).(\bar{A}.\bar{B})$
4) $(\bar{A}+B).(\overline{A.B})$

19. Select the answer that shows the values that the two inputs A and B must have for the output F to be constant 1 in the circuit below.

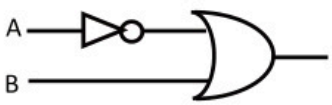
1) 0 ,0
2) 0 , 1
3) 1 , 0
4) 1 , 1



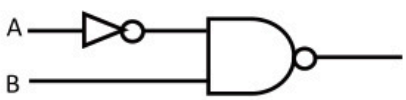
20. Which logic circuit represents the same truth table as the truth table of the following logic circuit?



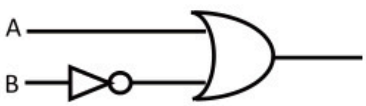
(1)



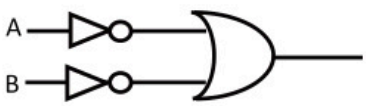
(2)



(3)



(4)



21. Consider the following statements.

A. Memory management
B. Providing spreadsheet and word processing facilities
C. Providing user interface
Among the above, which are the functions of an operating system?

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

22. After formatting the hard disk of a computer, the first software to be installed on the computer is which of the following?

1) Web browser
2) Antivirus software
3) Word processing software
4) Operating system

23. The settings and actions to be performed before printing a document are:

A. Storage
B. Performing page setup
C. Print Preview Inspection
D. Obtaining a new document

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

24. Common features of word processing software are:

A. Find and Replace
B. Spell checking
C. Setting Page margins
D. Font formatting

1) A and B only 2) B and C only 3) B and D only 4) All of the above

25. A student opened a document named student details stored in his computer and copied all the information in that document and opened a new document and entered everything copied into it. Then the document was saved with a new name as student details new.
If only shortcut keys were used for these activities, the shortcut keys used for the above process would be respectively,

1) Ctrl+O, Ctrl+A, Ctrl+C, Ctrl+N, Ctrl+V, Ctrl+S
2) Ctrl+N, Ctrl+V, Ctrl+S, Ctrl + O, Ctrl+A, Ctrl+C
3) Ctrl+A, Ctrl+S, Ctrl + O, Ctrl+C, Ctrl+N, Ctrl+V
4) Ctrl+V, Ctrl+S, Ctrl + O, Ctrl+A, Ctrl+N Ctrl+C

PAST PAPERS WIKI

26. Word processing software can be installed on your computer or used online to process documents. The answer is Free Software that can be used for these two functions

1) Open office writer and iWork pages
2) i work pages and google docs
3) libre office writer and Google docs
4) Open Office writer and Libre Office writer

Consider the following spreadsheet section to answer questions 27 and 28 below.

	A	B	C	D
1	4	2	3	
2	6	7	5	
3	1	8	9	
4				

27. What will appear when the formula =COUNT(A1:C1,B2) is entered in cell D1?

1) 9 2) 7 3) 4 4) 3

28. What will appear when the formula =A1^(3*(C1-B1)) is entered into cell D3?

1) 16 2) 64 3) 32 4) 12

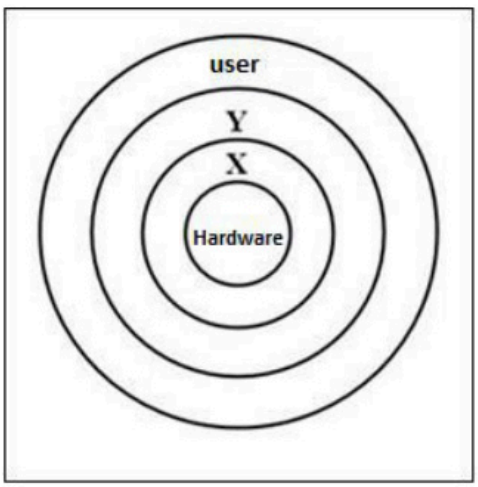
29. Which of the following are valid cell addresses?

A) F2

B) F2$
C) F2
D) F2

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

30. Consider the figure below:



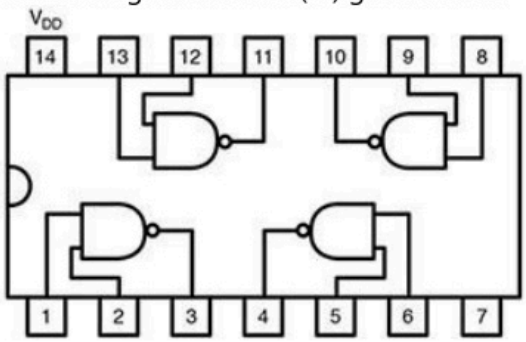
Which of the following is most appropriate for its X and Y?

1. X= application software , Y= utility software
2. X = utility software , Y= operating system
3. X = application software, Y= operating system
4. X = operating system, Y = application software

31. A new printer connected to a computer requires special software to be installed in order to function properly. What is this special software?

1. defragmenter
2. device driver
3. file manager
4. task manager

32. Consider the integrated circuit (IC) given below.



Which of the following is true about pins 1, 2, 3 in the above circuit?

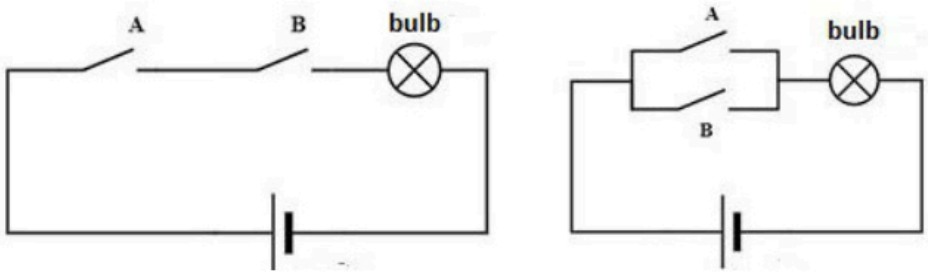
1. If pin 1 = 1 and pin 2 = 1 then pin 3 = 1.
2. If pin 1 = 1 and pin 2 = 0 then pin 3 = 1.
3. If pin 1 = 0 and pin 2 = 1 then pin 3 = 0.
4. If pin 1 = 0 and pin 2 = 0 then pin 3 = 0.

33. Which logic gate(s) is/are represented by the truth table shown below?

Input		Output
0	0	0
0	1	1
1	0	1
1	1	1

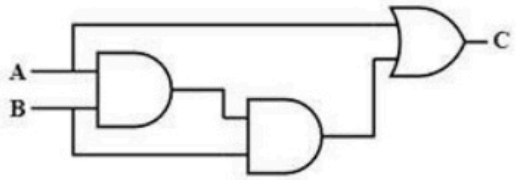


34. Diagrams 1 and 2 below show two circuits that operate a bulb using a battery and two switches (A and B). Which Gates are similar in function to the following electronic circuits?

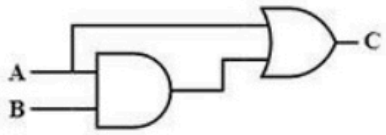


1. AND , OR
2. NAND , NOR
3. AND , NOR
4. AND , NOT

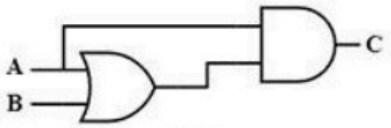
35. Which of the following logic circuits gives outputs equal to given inputs?



(I)



(II)



(III)

1. II and III only.
2. I and III only.
3. I and II only.
4. All of the above.

36. Which of the following is true about the medium of transmission?

A – Unshielded twisted pair (UTP) cables are suitable for data transmission over long distances exceeding 200 m.

B - Data transmission on fiber optic cables is faster than unshielded twisted pair (UTP) cables.

C - Uses microwaves as an unguided medium to transmit data over a long distance.

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

37. Which of the following are factors to consider when choosing a transmission medium for a network?

A - Data transfer speed B - Distance C - Cost and ease of installation

1. A and B only.
2. B and C only.
3. A and C only.
4. All A, B and C.

38. The correct sequence of booting process of a computer is,

A. The BIOS runs the firmware's POST program first

B. The operating system on the boot drive accesses random access memory

C. Bootstrap loader reads the MBR (Master Boot Record) of the first storage device identified by the POST program according to the firmware.

1) A,C,B 2) A,B,C 3) B,A,C 4) C,B,A

39. Binary code uses 4 bits to represent each digit in the decimal (BCD) number system. What is the bit pattern obtained when the decimal number 82 is encoded by binary coded decimal?

(1). 10000010 (2) . 00101000 (3) .10000010 (4).11100000

40. Which of the following is approximately equivalent to 2TB?

1). $2x2^{10}$ MB 2). $2x2^{20}$ GB 3) $2x2^{10}$ KB 4) $2x2^{40}$ bytes

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INFORMATION AND COMMUNICATION TECHNOLOGY - PAPER 2

INDEX NO..... **TIME – 1 1/2 HOURS**

(01) Write short answers.

i. Thamara goes to a book store to buy 2 exercise books and 3 pencils. Once the relevant items are found, the merchant assistant enters the barcodes of the items into the store's information system. The quantities of each item are also entered into the system. The system calculates the price of each item and the total value of all items. Then the bill will be printed for the transaction. Write one **input, process** and **output** of this system.

ii. (a) Convert the number 465_8 to its equivalent decimal number.

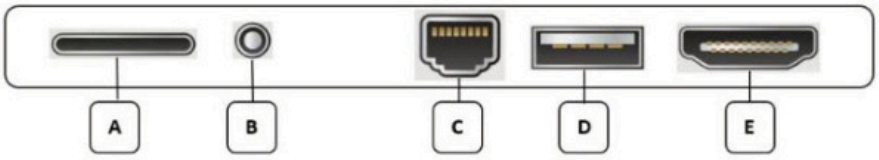
(b) If the decimal value of symbol 'M' is 77 , Mention the word 'AND' is represented in computer using its ASCII code.

iii. (a) Draw the logic gate circuit corresponding to the Boolean expression given below.

$$F = \bar{C} + A.\bar{B}$$

(b) What is the value of F when A=0, B=1 and C=1?

iv. Below are some of the Ports found in a laptop computer?



Write the label of the port that corresponds to the answer of the following questions.

(a) Which port can be used to connect a multimedia projector?

(b) Which port can be used to access the Internet over a network cable (Twisted Pair)?

v. Mention the generation in which the following were used in the evolution of computers.

(a) Mouse and keyboard for data input

(b) Operating Systems with Graphical Interfaces (GUI)

(c) Internet and multimedia applications

(d) stored program concept

vi. Fill in the blanks.

(a) Charles Babbage, known as the father of the computer, invented ..... in 1833.

(b) ..... is used for scientific and engineering work as well as for solving complex problems

(c) ..... is used to check the accuracy of a cheque.

(d) When the user powers up the computer the CPU (Central Processing Unit) activates the .....

(BIOS , Super Computer , Analytical Engine, MICR)

vii. Fill in the blanks in the following sentences choosing the appropriate terms from the given terms and write them with the relevant label.

A) In the ..... Method, data is transmitted in only one direction at a time.

B) The physical media used for data transmission is called .....

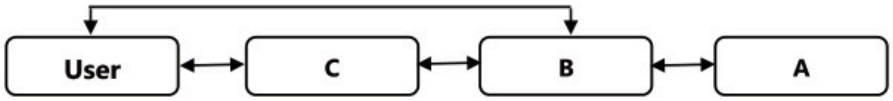
C) ..... are heavy and expensive but develops the status of data transmission and Protects transmitted data.

D) Wifi and Bluetooth are examples of working on .....

List - full duplex, half duplex, Unguided media, Guided media, microwave, shielded twisted pair (STP), optical fiber cables, radio waves)

viii. The figure below shows the interaction between a user and a computer system. Choose the words that match the labels A, B and C given in the picture from the list below and write the word corresponding to each label.

List - Hardware , Application Software , Operating System Software , Live ware



ix. In the absence of word processing software installed on the computer, documents can be created using the Internet.

(a) Write 2 advantages of using Cloud Computing.

(b) Write 2 word processing software that can create documents using the Internet.

x. (a) Write 2 examples for spreadsheet software.

(b) What is the value of **=2^4/(5-1^3)*5**?

(02) (a) i. Write Suitable words for the blanks in the table below, constructed from coding systems used in computers. *(Write the relevant word with the relevant label in the blank space of the answer sheet.)*

Coding System	Number of Bits used	Number of Characters
BCD	4	.....P.....
ASCII	.....Q.....	128
EBCDIC	8	.....R.....
Unicode	.....S....	65536

ii. The table below shows the RGB values for a few selected colors and their corresponding hexadecimal values. Write the appropriate words in the blanks with their labels on the answer sheet.

Color	Red	Green	Blue	Hexa Decimal Value
Dark purple	135	31	120	#871F78
Light Pink	255	182	193	....X.....
Green	0	...Y...	....Z....	#00FF15

(b) The operation of the automatic system of a modern refrigerator is as follows.

- Temperature sensor (P) = 1 which activates when the internal temperature rises.
- Quantity detection sensor (Q) = 1 which activates when the quantity of goods exceeds a given limit.
- Door opening detection sensor (R) = 1 which activates when the door is opened.
- When the internal temperature increases or the amount of goods increases, the sensor (Q) is activated and a sound (Alarm) informs about it, and if the door is open, the sensor is deactivated.

i. Create a logic circuit for the above system.

ii. Write the Boolean expression for above phenomenon.

(03) (a) Some of the different fields where information and communication technology are used are given below and write 2 examples each for the cases where it is used in each field.

1. The field of education
2. Agricultural sector

(b) Given below are some devices used in computers. According to the form of providing information to the user, select only the relevant devices from the given list of terms and enter them in the table below. (Copy the table in the answer sheet)

[List of terms - hard disk, Speaker, motherboard, line printer, multimedia projector, printer, Light Emitting Diode monitor, Dot Matrix Printer]

	Hard Copies	Soft Copies	Sound
1			
2			

(04) (a) Draw a star topology network using 4 computers and a printer. Name the devices. It is not necessary to draw the devices and it is sufficient to draw the box plan and connections.

(b) Computer networks can be classified according to the location of the land and according to the need of the user. Accordingly, write down the following examples of networking according to the type of network they belong to. (Copy the table in the answer sheet)

A- A Computer network built in a private banking institution connecting its branches in several nearby cities

B- The computer network set up by an educational institution in its office building

C- A Computer network built by a company that provides internet services to its server computers and clients located in several countries

Label	Type of Network
A	
B	
C	

(05) Choose the most suitable answer for the blanks of the following questions from the list below and write it with the relevant label.

1. An operating system in which services can only be accessed by one user at a time is called as a .....(A).....

2. Operating system that responds without any delay as soon as the input is given is called .....(B)..... operating system and those operating systems are used in .....(C).....

3. Ubuntu and Linux are available for free use and these are called as .....(D),,,,,,,,,,,,,,operating systems

4. .....(E)..... , ...(F)..... file formats are used by different operating systems and sequential and .....,,,,,,,(G)..... are used to access data and files of them.

5. Providing user-friendly interfaces is one of the main functions of an operating system and they can be seen in two ways such as .....(H)..... ... and .....(I)..... ..... File management and .....(J)..... are some of the processes used to manage hardware of a computer.

(LIST OF TERMS - Command Line [CLI] , ATM machine , Sequential , Single User , Memory management , Real Time , Multi User , Free and Open Source (FOSS) , Proprietary , NTFS , Graphical User [GUI] , Random Access , FAT)

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INFORMATION AND COMMUNICATION TECHNOLOGY

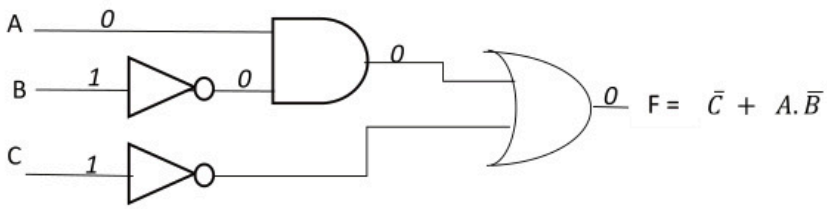
ANSWER SHEET

PAPER 1

Question No	Answer	Question No	Answer	Question No	Answer	Question No	Answer
1	3	11	4	21	2	31	2
2	3	12	2	22	4	32	2
3	1	13	2	23	4	33	3
4	2	14	2	24	4	34	1
5	3	15	4	25	1	35	4
6	4	16	1	26	3	36	3
7	1	17	3	27	3	37	4
8	2	18	4	28	2	38	1
9	3	19	3	29	3	39	3
10	3	20	1	30	4	40	4

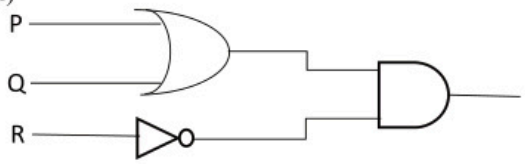
PAPER 11

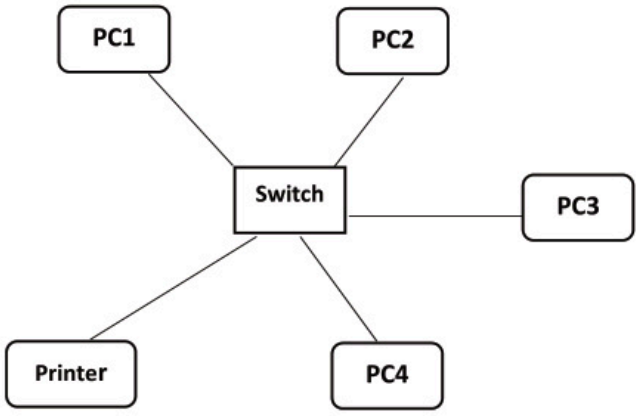
1 . (i)	• Input – Bar Code /Quantity of the item • Process – cost per item / cost of all items • Output – Printed Bill / Bill	2 marks
(ii)	ii) (a) 465_8 $4 \quad 6 \quad 5$ $4x8^2 + 6x8^1 + 5x8^0$ $4 \times 64 + 6x8 + 5x\,1$ $256 + 48 + 5$ 309	1 marks

	(b) M = 77 →1001100 N= 78 → _____ 1+ **1001101** =A → 1100 - **1000001** D = → + 11 **1000100** 1000100 1001101 1000001 A N D	1 marks
(iii)	.(a)  (b) F = 0	1 marks 1 marks
(iv)	ii) (a) E (b) C	2 marks
(v)	a) Third generation b) Fourth generation c) Fifth generation d) First generation	2 marks
(vi)	a) Analytical engine b) Super computer c) MICR d) BIOS	2 marks
(vii)	A - Half Duplex B - Guided media C – STP – Shielded Twisted Pair D – Radio Waves	2 marks
(viii)	A - Hardware B - Operating Systems C - Application	2 marks
(ix)	(a) * No need to install word processing software on the computer * Saving computer memory space * Availability of Internet space for document storage * Being able to open these documents on any computer with internet facilities (b) Google docs / Office 365 word / One drive word	2 marks
(x)	)a) MS Excel / Open Office calc /Libere office calc /Numbers /Google sheet (b) 2 ^ 4 / (5 - 1 ^ 3) * 5 = 2 ^ 4 / (5 - 1) * 5 =16 / 4 * 5 = 4 * 5 = 20	2 marks

02 (a)	(i)
	P - 16
	Q - 7
	R - 256
	S - 16
	(4 marks)
	(ii)
	X = # FFB6C1
	Y = 255
	Z = 21
	(3 marks)
		7 marks

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(b)	(i)  (ii) $(P + Q) . \bar{R}$	2 marks 1 marks
03 (a)	1 Field of Education As a learning aid in the classroom Learning anywhere anytime Learning Management Systems 2. Agricultural Weather gauges Insect control equipment Measuring the condition of the cultivated land * Correct 2 out of the cases like automatic water supply systems	4 marks (2x2)
(b)	<table><tr><th></th><th>Hard Copies</th><th>Soft Copies</th><th>Sound</th></tr><tr><td></td><td>Line Printer</td><td>Multimedia Projector</td><td>Speaker</td></tr><tr><td></td><td>Dot Matrix Printer</td><td>Light Emitting Diode</td><td>Headphone</td></tr></table>	6 marks (1x6)

04.(a)	 	5 marks
04.(b)	**Advantages-** 1. Common use of resources 2. To be able to exchange data and information between computers 3. Email **Disadvantages –** 1. Less security for data 2. Network breakdown 3. Possibility of entering viruses	2 marks
04.(c)	**Label** — **Network Type** A — MAN B — LAN C — WAN	3 marks

05.A	Single User	10 marks (1x10)
B	Real time	
C	ATM machine	
D	Free and Open Source (FOSS)	
E	NTFS	
F	FAT	
G	Random Access	
H	Command line (CLI)	
I	Graphical User (GUI)	
J	Memory management	

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