தகவல் தொடர்பாடல் தொழினுட்பம் - I

Information Communication Technology - I

**Three Hours**

Gr -12 (2022)

| 20 | T | I |

Part – I

Answer the all questions

01. Which contributes specifically to the advancement of the use of information and communication technology?

   a. The rapid advancement of semiconductor technology (i.e. the development of vacuum tube transistor replacement IC, VLIC, ULIC, etc.) has led to lower cost hardware.

   b. User friendly software interfaces were introduced to the system.

   c. Production of mobile and smart devices by combining computer and communication technology.

   1) Only A   2) only B   3) Only A and C   4) Only B and C   5) A, B, and C

02. In the given memory hierarchical diagram, which of the following characterizes A, B, C, D respectively.

   1) Magnetic tape, hard disk, main memory, and register memory.

   2) Register memory, hard disk, main memory, and magnetic tape.

   3) Register memory, main memory, magnetic tape, and hard disk.

   4) Register memory, main memory, hard disk, and magnetic tape.

   5) Main memory, register memory, hard disk, and magnetic tape.
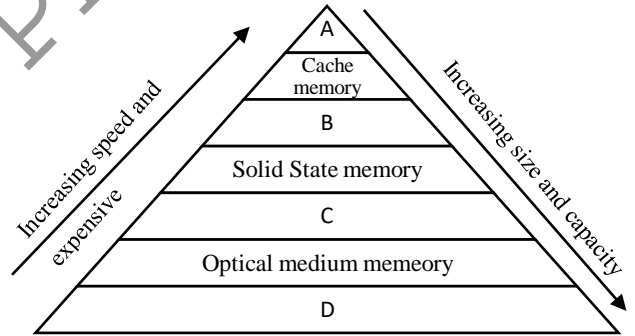
03. Consider the following computer storage.
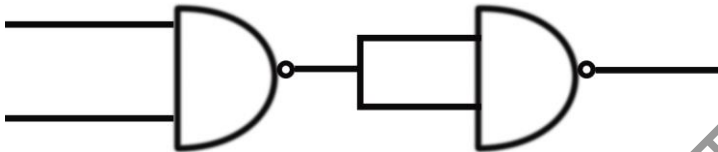
   A) Register memory.

   B) Cache memory.

   C) Hard disk

   D) Main Memory(RAM)

   E) Read only memory (ROM).

   Which of the following is volatile memory?

   1) A, C, and D   2) A, D, and E   3) A, B and D

   4) B, C, and E   5) A, B, C, D, and E

04. Sort the following computer memories in descending order by using their data accessing rate

    1)   Cache memory > main memory > hard disk > register memory.

    2)   Hard disk > main memory > cache memory > register memory.

    3)   Hard disk > main memory > register memory > cache memory.

    4)   Register memory > cache memory > main memory > hard disk.

    5)   Register memory > main memory > hard disk > cache memory.

05. Who was the first to propose the concept of a stored program?

    1) Lady Ada Angusta   2) Charles Babbage   3) Howard Aiken

    4) Blaise Pascal   5) Von Neumann

06. Which of the following computer components is most commonly found outside the Central Processing Unit (CPU)?

    1) RAM   2) Control Unit (CU)   3) ALU

    4) Register memory   5) L_1 Cache memory

07. Which of the following storage devices is generally considered to be the device that provides quick data access?

    1) Compact Disc (CD)   2) Digital Versatile Disc(DVD) 3) Internal hard disk

    4) Flash drive   5) magnetic tape

08. Which of the following statements is true?

    1)   First-generation computers were made using by transistors.

    2)   ENIAC is a second generation computer.

    3)   Ada Lovelace was the inventor of the analytical engine.

    4)   Alan Turing is considered to be the first computer programmer.

    5)   Abacus is believed to be the first predictive device

09. CACHE memory is used at various levels to improve performance on modern computers. Among them ………B………..cache memory inside the …………A………. is the fastest and most expensive cache memory. Which of the following words is appropriate for A and B here?

    1) Main memory, L1 Cache memory   2) Mother board, Cache memory

    3) Microprocessor or CPU, L1 cache   4) Microprocessor or CPU, L3 cache

    5) Microprocessor or CPU, L2 cache

10. Charles Babbage is considered to be the "father of the computer" by some people because he is?

    1)   This is due to the invention of a mechanical calculator called the Pascaline.

    2)   This is due to the invention of an electronic calculator that can be reprogrammed.

    3)   This is because he is the lead to developing the first personal computer in IBM Company.

    4)   This is because he was the first to introduce the concept of "input process and output" used in modern computers.

    5)   He is the founder of ENIAC, the first electronic digital computer.

11. Which of the following is not a defect in manually manipulating data?
    1) The process requires more time.
    2) Insecurity.
    3) Ability to process data as information even in the event of a power outage.
    4) Expensive.
    5) Definition of the human brain.

12. Which of the following is not a basic component of a computer?
    1) hardware   2) software   3) livewire   4) electricity   5) firmware

13. Which of the following semi-automated or automated tool to get input as printed hardcopy then converting into editable softcopy?
    1) keyboard   2) OCR   3) OMAR   4) MICR   5) magnetic tape

14. Which of the following is not a data input method?
    1) direct   2) indirect   3) remote   4) online   5) offline

15. Which of the following shows the bitwise OR function of the two binary numbers of 010100 and 100101?
    1) 000000   2) 110101   3) 000001   4) 111001   5) 111111

16. Which of the following refers to the -45 as the two complement in 8 bits?
    1) 00101101   2) 11001101   3) 00101111   4) 11010011   5) 10110011

17. What is the decimal number equal to the binary number 110101.011?
    1) 53.00   2) 53.375   3) 427   4) 53.75   5) 26.875

18. What is the octal number equal to the hexadecimal number 5D?
    1) 1011101   2) 135   3) 561   4) 513   5) 153

19. Consider the following statements.
    a. Big data is the most collected data.
    b. Challenges in dealing with big data include collection, storage, analysis, data accuracy, search, sharing, querying, etc.
    c. Characteristics of large data include high volume and diversity
    Which of the above statements are correct
    1) only a   2) only b   3) only c   4) a and c   5) a, b, and c

20. Consider the following statements about memory
    a. level 1 cache memory is found on the computer's motherboard
    b. level 2 cache memory is found on the computer's motherboard or computer CPU
    c. RAM used as the main memory in a computer is of the DRAM (Dynamic RAM) type
    Which of the following are correct?
    1) only a   2) only b   3) b and c   4) a and c   5) a, b and c

21. Which of the following is the most commonly used memory for register memory and cache memory?

    1) DRAM   2) DDRAM   3) SDRAM   4) SRAM   5) DDR SDRAM

22. Which of the following is a ROM that can erase data using UV rays?

    1) PROM- Programmable ROM   2) EPROM – Erasable PROM

    3) EEPROM – Electrically Erasable PROM   4) BIOS   5) CMOS

23. Which of the following is the final Boolean expression obtained by abbreviating the Boolean expression $F = X . (X+Y)$ to the Boolean rules?

    1) $F = 1$ 2) $F = X + Y$ 3) $F = 1 + Y$ 4) $F = X$ 5) $F = XY + 1$

24. Which of the following can be considered as the standard sum of products (SOP)?

    1) $F = A + AB$ 2) $F = AB + A(A + B)$ 3) $F = \overline{AB}C + AB\overline{C}$

    4) $F = AB + BC + AC$ 5) $F = ABC + \overline{A}B\overline{C} + AC$

25.

    What is the logical function equivalent to the above logic circuit?

    1) NAND   2) AND   3) XOR   4) XNOR   5) NOR

26. which of the following is the decimal number 0.125 is denoted by a floating point number system of 8 bits length and 4 bits exponent

    1) 00100000   2) 00000100   3) 10100000   4) 011011010   5) 00000010

27. Which of the following are correct to observe the following statements about the computer character replacement code?

    a. All languages in the world can be copied to the computer using the Unicode notation.

    b. Digits and English alphabets can be categorized using the BCD code.

    c. Although EBCDIC is able to categorize a large number of fonts from ASCII, these come in a variety of versions.

    1) only a   2) only b   3) a and b   4) a, b, and c   5) a and c

28. Which of following is correctly replaced in BCD?

    1) 10010111   2) 101100001000   3) 000010100001

    4) 0000110000001010   5) 11110101

29. What is the decimal number obtained by adding the binary two's complement numbers 00011 and 11011?

    1) 30   2) -10   3) 11110   4) 3   5) -2

30. In the following, where are data and program stored when the processer perform fast?

    1) Random Access Memory   2) Hard disk   3) Flash drive

    4) Cache memory   5) Digital Versatile Disk(DVD)

31. Consider the binary numbers P=1100001, Q= 1010010 and logical operations X=P XOR Q, Y = P XNOR Q, then the values of x and y are respectively

1) 1001100, 0110011   2) 110110, 1011110   3) 0110011, 1001000

4) 0110011, 1001100   5) 1010010, 1100001

32. Consider the statements about representation methods used to represent negative numbers in the computer. Which of these are correct?

   a. The Signed magnitude method using additional one bit for replacing negative sign.

   b. When replacing negative numbers in the one's complements, two substitutions for zero are obtained, that are negative zero and positive zero. This is the main drawback of this replacement system.

   c. The two's complements is used to perform arithmetic operations on the computer and to develop high-speed hardware at low cost.

1) a, b, and c   2) a and b   3) only a   4) only b   5) a and c

33. Which of the following is an abbreviated Boolean expression characterized by the following Karnaugh diagram?

1) $\bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}BC\bar{D} + A\bar{B}\bar{C}\bar{D} + ABCD$

2) $\bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}B\bar{D} + ABCD$

3) $\bar{B}\bar{C}\bar{D} + A\bar{B}\bar{C}\bar{D} + ABCD$

4) $\bar{B}\bar{C}\bar{D} + \bar{A}B\bar{D} + ABCD$

5) $\bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}BC\bar{D} + A\bar{B}\bar{C}\bar{D}$

CD \ AB	00	01	11	10
00	1			1
01				
11			1	
10	1			

34. Which of the following is the most condensed expression equal to $AB + A(B + C) + B(B + C)$?

1) A+AB   2) B+AC   3) AB+AC+A   4) BC+C   5) AB+AC+B+C

35. Consider the following logic circuit. Which of the following statements is correct about the relationship between inputs A, B, C and output Q in this logic?
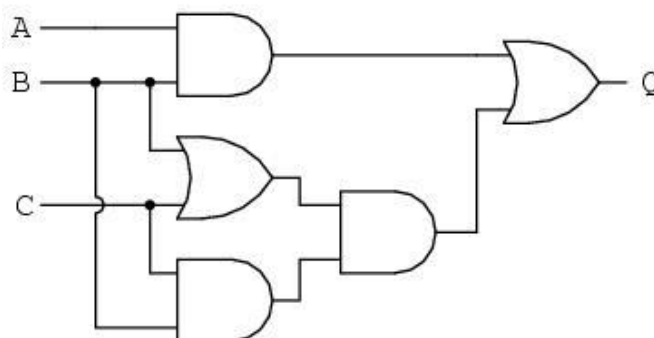
1) A=0, B=0, and C=0, then Q=1.

2) A=1, B=1, and C=1, then Q=0.

3) A=0, B=0, and C=1, then Q=1.

4) A=0, B=1, and C=1, then Q=1.

5) A=1, B=1, and C=0, then Q=0.

36. Which of following is correct standard some of product (SOP) for given truth table?

A	B	C	Output
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

1) $\bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C} + A\bar{B}\bar{C}$

2) $\bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C} + \bar{A}BC$

3) $\bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$

4) $\bar{A}BC + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C}$

5) $(\bar{A} + \bar{B} + \bar{C}).(\bar{A} + \bar{B} + C).(\bar{A} + B + \bar{C}).(A + \bar{B} + \bar{C})$

37. Consider the following statement about given circuit

a. This indicator circuit only have four NOR gates.

b. Here terminals 7 and 14 are the power supply terminals, terminals 2,3,5,6,8,9,11,12 are the input terminals and terminals 1, 4, 10, 13 are the output terminals.

c. Connect nodes 11 and 12 together and give input 1, connect terminals 8 and 9 together and give the input 0 and connect node 13 with node 2 and node 10 with node 3.now output at terminal 1 is currently 1.
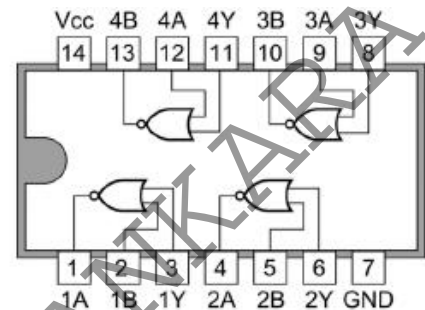
1) only statement c is correct   2) only statement a is correct   3) Statements b and c are correct

4) Statements a and b are correct   5) Statements a, b, and c are correct

38. Consider the following grouping work in Karnaugh map. Which of the following is wrong?

1)

2)

3)

4)

5)
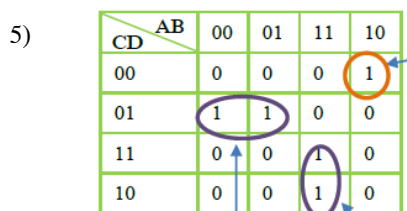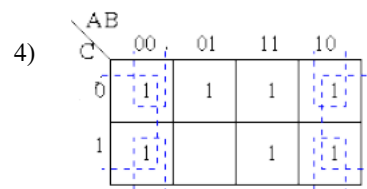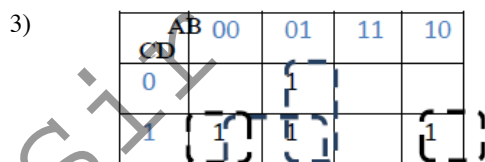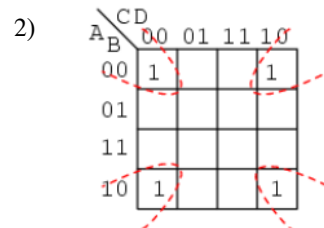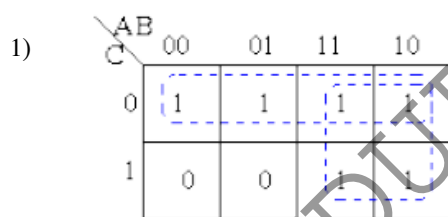
39. Consider the following statements about half adder and full adder.

    a. The half adder circuit has two inputs and two outputs. That's outputs are one is sum and other one is carry or carry-out.

    b. There are three inputs and two output to the full adder circuit. The third of these inputs is called carry-in, this is the carry-out obtained by adding the bits in the first bits that are currently being added.

    c. The half adder can add single bit numbers. If you need to add more than one bits numbers then you need in addition full adder than half adder.

    1) Only a is correct.   2) Only b is correct   3) Only c is correct

    4) Only a and c are correct   5) Only a, b, and c are correct

40. Consider the following logical circuits with NAND gates
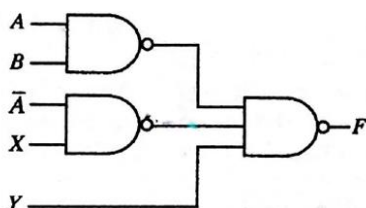
What are the inputs X and Y of the output $AB + \bar{A}\bar{B} + \bar{C}$ required in the above circuit?

1) X=B and Y=C   2) X=B and Y=$\bar{C}$ 3) X=$\bar{B}$ and Y=C

4) X=$\bar{B}$ and Y=$\bar{C}$ 5) X=$\bar{C}$ and Y=B

தகவல் தொடர்பாடல் தொழினுட்பம் - II A			
Information Communication Technology - II A	Gr -12 (2022)	20 T	II

Part – II A
Structured Essay

❖ **Answer the all questions.**

01.

a) Define the term cloud computing? Mention all three basic services provided by cloud computing?

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b) What are the three drawback in manual handling of data and information and how can resolve these issues using the computer?

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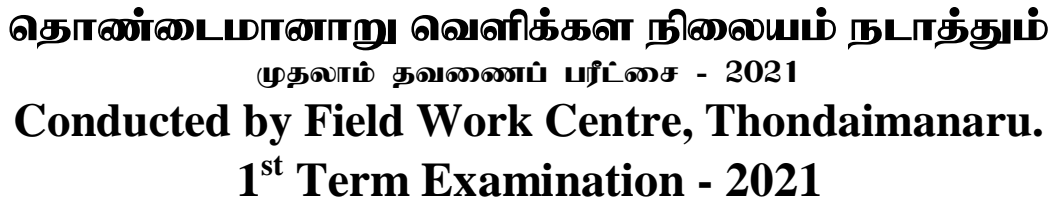
c) Mention that each of the following statements is true if it is true and false if it is false.

i) Data type check is the process of verifying that the correct data type is entered into the computer……………..……..

ii) It is difficult to handle large volumes of data through batch data processing …….……..

iii) The modules found in nuclear power plant control and automatic pilots are real-time processing method………………

iv) The electronic valve was invented in 1906 by Blaise Pascal ………………..…

v) The first automated serial controller was developed in 1939 by Howard Aiken. It's called Mark 1…………………….

d) Specify the factors that impact the compute classification and the types of computer that are included in them.

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02.

a) Choose the appropriate words from the list below to fill in the blanks below. Write only the appropriate numbers for each of the spaces.

i) ……………………. is a output device used to print information on paper and obtain hard copy.

ii) …………………….. is the ability to view software programs and use them. You can also use it for free.

iii) ………………….. is a device that uses light to scan marked data on a piece of paper.

iv) A suitable storage device for transferring a file with a capacity of 28 GB is a …………………..

v) The only ROM memory that can be erased by electricity is ……………………….

LIST:- [1 – blue ray disk, 2- PROM, 3- LED Display, 4- Open source software, 5-EEPROM, 6-OMR, 7- laser printer, 8- OCR, 9- application software]

b) What is primary memory? Why it is need for the computer?

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c) What is parallel computing?

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d) What is plagiarism?

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03.

a) How to convert two's complement number into binary number?

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b) Convert the numbers 20 and - 35 into two's complement?-

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c) Specify the answer in decimals by subtracting the decimal numbers 20 and -35 using the binary two's complement?

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d) Use sign- 1 bit, exponent- 5 bit and mantissa- 10 bits to denote the decimal number -0.628 in 16 bits long and floating point notation.

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04.

a) Simplify the logic expression F=(A+B)(A+C) according to the rules of logic

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b) Create a standard SOP for the logic expression $F=\bar{A}(A + B) + (B + AA)(A + \bar{B})$.

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c) Simplify the SOP created by you above using the Karnaugh Map

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d) Draw a logic circuit equivalent to the simplified logic expression you created above?

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தொண்டைமானாறு வெளிக்கள நிலையம் நடாத்தும்
முதலாம் தவணைப் பரீட்சை - 2021
Conducted by Field Work Centre, Thondaimanaru.
1ˢᵗ Term Examination - 2021

FWC

தகவல் தொடர்பாடல் தொழினுட்பம்   **- II B**
Information Communication Technology - II B

Gr -12 (2022)   **20**   **T**   **II**

Part – II – B
Essay Question

> **Only answer two questions.**

01. A new technology vehicle has an alarm signal as follows: The three Sensors A, B, and C are used and alarm Z are used. The Sensor A is used to determine the operation of the engine, the Sensor B is used to determine if the seat belt is worn, and the Sensors C is used to determine if the vehicle doors are locked. The alarm signal will sound if these sensors detect the following conditions.

    i) A warning signal will sound if someone in the vehicle seat is not wearing a seat belt while the engine is running.

    ii) Warning signal will sound if the vehicle doors are not closed while the engine is running.

    iii) Sensor A gives input of 1 while the engine is running and Sensor A gives an input of 0 while the engine is not running.

    iv) If the person sitting in the seat does not wear a seat belt, Sensor B gives an input of 1. And if the seat belt is worn Sensor B gives an input of 0.

    v) Sensor C will give an input of 0 if the door is open and an input of 1 if the doors are closed.

    vi) Assume the alarm sounding level is 1 and alarm sounding level is 0.

    a. Draw the truth table for the above event? Mark the min term and max term in the table?

    b. Get the SOP (Sum of Product) and POS (Product OF Sum) logical expression for the truth table.

    c. Simplify the Boolean expression obtained in the above question by using the Karnaugh map?

    d. To set the Boolean circuit for the simplified Boolean Expression obtained in the above question c by using NOR gates only?

02.

    a. What is digital divide? Mention 3 steps to address digital divide?

    b. What is the confidentiality of information? Mention two steps you can take to keep your information confidential?

    c. Secondary memories have three types of data reading and writing technologies or media. Give them and give examples of each of them?

    d. Hard copy release tools can generally be classified into two types. Mention them and the tools they include?

    e. Mention the 5 disadvantages of information and communication technology?

03.

    a. Do you agree with the claim that "semi-automated or automated data collection is better than manual data collection"? Specify the reason?

    b. Write the four basic component of a modern computer and describe them?

    c. Simplify

        i) $1100_2 + 20 + 67_8$

        ii) $D5_{16} - 11011_2$

        iii) $1101_2 + 110$

        iv) $3A_{16} + 45_8$

    d. Specify the four codes used to classify the data in the computer and specify the number of bits used to classify the data in them?

    e. What does the word APPLE mean in ASCII notation (ASCII decimals for each character are A = 65, E = 69, L = 76, P = 80)