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First Term Test – May, 2023

Grade 12

Information & Communication Technology – I

1 hour

1. Consider the following statements regarding the value of information.

- A - The value of information depends on its relevance.
- B - Information has more value at the moment it is created or received.
- C - The value of the information is maximized when the time is closest to zero.
- D - The value of information gradually decreases over time. Eventually they become data again.

Which of the above statements is/are true?

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

2. Who is the inventor of World Wide Web?

- (1) Charles Babbage
- (2) Blaise Pascal
- (3) Howard Aiken
- (4) Tim Berners-Lee
- (5) Herman Hollerith

3. Which of the following correctly defines Real-time processing?

- (1) Processing of data collected over a specified period of time as a group.
- (2) Proper preparation of data before computerization.
- (3) Correction of errors in computerized data.
- (4) Processing of data right after it is received.
- (5) Processing of maximum amount of data within a second.

4. Consider the following statements regarding data and information.

- A - The accuracy of the information depends on the accuracy of the input data.
- B - Information obtained after processing of data is always accurate.
- C - In order to make the right decisions, the right data is needed.

Which of the above statements is/are true?

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

5. Which of the following is not a social issue that can be caused by Information Technology?
- (1) Reduction of interpersonal relationships
 - (2) The digital divide
 - (3) People suffering from physical and mental issues
 - (4) Decreased use of paperwork
 - (5) Discard of e-waste to the environment
6. Which of the following statements is false?
- (1) Privacy is the protection of personal information in computer data bases from misuse.
 - (2) Software piracy is the making of illegal and unauthorized copies of software that the user does not have the legal right to.
 - (3) Copyright is the author's right to print and sell copies of his material.
 - (4) Any Software can be re-copied, sold and distributed after purchasing.
 - (5) A patent is an intellectual property right that can be obtained even by a single person who creates a new design or invention.
7. The computer system is composed of several components. Which of the following is not a main component of the computer system?
- (1) Firmware (2) Hardware (3) Software (4) Liveware (5) Shareware
8. The electronic era began when computers were built using
Select the most appropriate hardware technology to fill the blank above.
- (1) Microprocessor (2) Transistor (3) Integrated Circuit
(4) Vacuum tube (5) Electrical relay
9. Who first recognized the computer's ability to perform different tasks when different instructions were provided?
- (1) Charles Babbage (2) Blaise Pascal (3) John von Neumann
(4) Ada Augusta Lovelace (5) John Mauchly and J. Presper Eckert
10. Which generation of computers first introduced the storage technology which later evolved into Blu-ray disks?
- (1) First generation (2) Second generation (3) Third generation
(4) Fourth generation (5) Fifth generation
11. In the instruction cycle, Arithmetic and Logic Unit executes the decoded commands coming from which hardware component?
- (1) Random Access Memory (2) Control Unit (3) Memory Registers
(4) Cache Memory (5) Keyboard

12. Consider the following statement.
"A 'Chatbot' is a computer program that simulates human conversation, allowing humans to interact with digital devices as if they were communicating with a real person."
Choose the software technology which is used to develop the 'Chatbot' program and the Computer generation the 'Chatbot' program belongs to.

- (1) Machine language / First generation
- (2) Machine language / Fifth generation
- (3) Artificial intelligence / Fourth generation
- (4) Artificial intelligence / Fifth generation
- (5) Ultra Large Scale Integration / Fifth generation

13. "Seismometer" measure the intensity of an earthquake by recording seismic waves on to a graph paper.

Which of the followings correctly classifies the Seismometer based on the technology and the purpose?

- (1) Analog / General purpose computer
- (2) Digital / General purpose computer
- (3) Analog / Special purpose computer
- (4) Digital / Special purpose computer
- (5) Hybrid / General purpose computer

14. During the fetch-execute cycle the control bus, data bus and address bus are all in use.

"Once theA..... specifies the memory location it needs to access in the main memory, theB..... activates the "Read" signal. Then the content of the memory location is placed into theC..... and transferred to the CPU. "

Select the most appropriate bus types to fill in the blanks in the above statement.

- | | | |
|---------------------|-----------------|-----------------|
| (1) A – Address bus | B – Control bus | C – Data bus |
| (2) A – Data bus | B – Address bus | C – Control bus |
| (3) A – Data bus | B – Control bus | C – Address bus |
| (4) A – Control bus | B – Address bus | C – Data bus |
| (5) A – Address bus | B – Data bus | C – Control bus |

15. What is the equivalent of eight bits two's complement of (-23)?

- (1) 10010111 (2) 11101000 (3) 11101001 (4) 00011000 (5) 00010111

16. If a student has obtained 46_{16} , 80_{10} and 1011010_2 marks for the three subjects she faced at the term test, what is the average mark she obtained?

- (1) 120_8 (2) 120_{10} (3) 1000110_2 (4) 240_{10} (5) $5A_{16}$

17. Which of the following represents the result of the 4-bit One's complement addition of $13_{10} + (-7)_{10}$ in binary?

- (1) 0110 (2) 0101 (3) 0100 (4) 1001 (5) 1010

18. If the ASCII value of letter F equals to 70, what would be the ASCII value of letter W?

- (1) Given data is not sufficient to determine the value of W (2) 97
(3) 81 (4) 87 (5) 124

19. Consider the following statements regarding encoding systems.

A - EDCDIC is a 12-bit encoding system

B - ASCII is a 7-bit encoding system

C - UNICODE encoding system cannot be used to represent the characters of different languages in the world

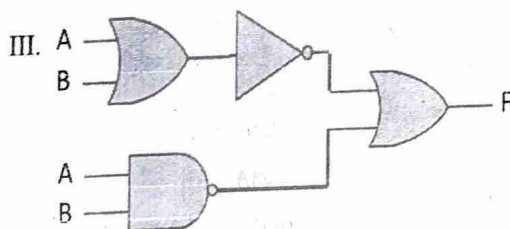
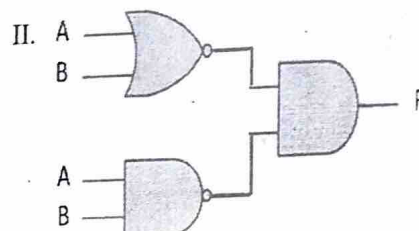
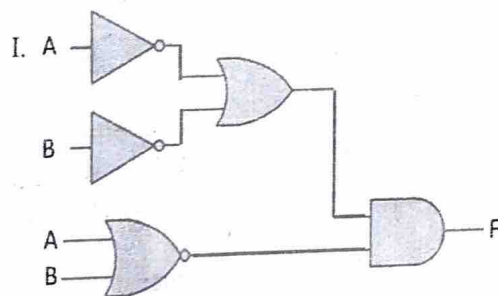
Which of the above statements is/are correct?

- (1) A only (2) B only (3) A and B only (4) A and C only (5) B and C only

20. What is the equivalent of bitwise $23_{10} \text{ XOR } 31_{10}$ in binary?

- (1) 10111 (2) 01000 (3) 11111 (4) 10110 (5) 00000

21. Which of the following logic circuits realizes the Boolean expression:
 $F = (A' + B')(A + B)'$?

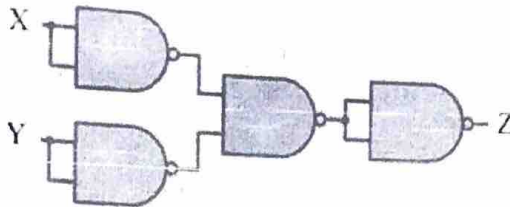


- (1) I only
(4) II and III only

- (2) II only
(5) All, I, II and III

- (3) I and II only

22. Consider the following logic circuit.



Which of the following logic gate's function is equivalent to the output "Z" of the logic circuit above?

- (1) EXOR (2) AND (3) OR (4) NOR (5) EXNOR

23. What is the Minimum number of 2-input NAND gates required to implement the simplified expression obtained from the following K Map?

F		AB			
C		00	01	11	10
	0	0	1	1	0
	1	0	1	1	0

- (1) No gates required (2) 1 (3) 2 (4) 3 (5) 4

24. Which of the following basic logic gates produces the complement of the input signal?

- (1) OR (2) AND (3) NOT (4) EXOR (5) NOR

25. Which of the following represents the least number of basic logic gates required to realize the following Boolean expression F?

$$F = A + B' + A'B'C$$

Note: A gate can only take maximum of 2 inputs.

- (1) 2 NOT, 2 AND, 2 OR gates
 (2) 2 NOT, 1 AND, 1 OR gates
 (3) 1 NOT, 1 OR gates
 (4) 1 NOT, 1 AND gates
 (5) 1 OR gate