General Certificate of Advanced Level Examination

Term — 3, 2022

Conducted by Field Work Center (FWC), Thondaimanaru

Information & Communication Technology (ICT)

தகவல் தொடர்பாடல் தொழினுட்பவியல்	I	**Three hours**	20	E	I
Information & Communication Technology	I	*Gr. 12 (2022)*			

Instructions:

❖ *Answer all the questions.*

❖ *Write down your index number on the space provided.*

❖ *In each of the questions 1 to 50, pick one of the alternatives (1),(2),(3),(4),(5) which is correct or most appropriate. Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.*

❖ *No use of calculators.*

Part - I

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1. The unit that holds the address of the next instruction to be executed fetching into the central processing unit is called ……………………..
(1) Program Counter (PC)
(2) Arithmetic Logic Unit (ALU)
(3) Control Unit (CU)
(4) Register
(5) Main memory

2. Consider the following statements.
A - It is not necessary to obtain legal permission for the usage of proprietary software from respective owners
B - All the open source software are always free of charge
C - Open source software give more rights to the users while comparing to proprietary software
Which of the above is /are correct?
(1) A only   (2) B only   (3) C only   (4) A,C only   (5) B,C only

3. Which of the following is not a component of central processing unit?
(1) Arithmetic Logic Unit
(2) Program Counter
(3) Control Unit
(4) L1 cache memory
(5) Random Access Memory

4. Which of the following is in the ascending order of speed of memory and secondary devices from left to right?

(1) Register, floppy disk, harddisk, main memory

(2) Main memory, floppy disk, harddisk, register

(3) Floppy disk, harddisk, main memory, register

(4) Harddisk, floppy disk, main memory, register

(5) Floppy disk, main memory, harddisk, register

5. Which of the following is the function of basic input-output system (BIOS)?

(1) It provides physical interfaces for various devices

(2) It provides programs for central processing unit (CPU) in order to communicate peripherals

(3) It provides memory space for loading of applications from hardware

(4) It provides electric power required for computer

(5) It provides memory space needed for computer

6. "Jack Kilbycreated …………………in 1958 to establish that resistors and capacitors can be located in the same semi-conductor".

Which of the following is appropriate to fill the blank in?

(1) Vacuum tube

(2) Point-contact transistor

(3) Integrated circuit

(4) Microprocessor

(5) Electronic valve

7. Which of the following factor(s) can be used to compare the characteristic(s) of different memory/ memories?

A - Physical size

B - Speed

C - Capacity

D - Cost

(1) A only   (2) B only   (3) B,C only   (4) B,C,D only   (5) A,B,C,D all

8. Consider the following statements.

A - Static random access memeory (SRAM) has more density than dynamic random access memory (DRAM)

B - Dynamic random access memory technology is used as the technology of register

C - Static random access memeory has more speed than dynamic random access memory

Which of the above is /are incorrect?

(1) A only   (2) B only   (3) C only   (4) A,B only   (5) A,B,C all

9. Two's complements of 9_{10} and (-6_{10}) respectively.

(1) 00000110_2, 11110111_2 (2) 10000110_2, $100101 11_2$ (3) 00001001_2, 11111010_2

(4) 11100110_2, 11100011_2 (5) 00000110_2, 11110111_2

10. Which of the following is equivalent to 13.375_{10}?

(1) 1101.110_2 (2) 1001.011_2 (3) 1101.101_2

(4) 1101.011_2 (5) 1111.011_2

11. $456_8 + 27_8 =$
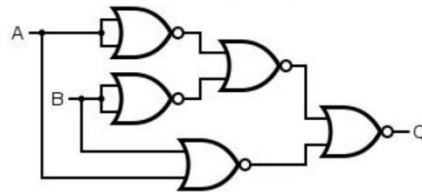
A - 267_8

B - 111010110_2

C - $1D6_{16}$

(1) A only   (2) A,B only   (3) A,C only   (4) B,C only   (5) A,B,C all

12. Which of the following is the simplified form of Boolean expression $ABC + A\bar{B}C + \bar{A}BC$?

(1) $A + B.C$ (2) $C.(A + B)$ (3) $A + B\bar{C}$ (4) $AB + \bar{C}$ (5) $A + (\overline{B + C})$

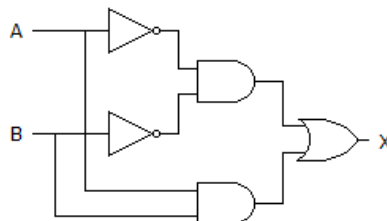**13.** What is the equivalent logic to the output Q of the following logic circuit?

(1) OR   (2) XOR   (3) NOR   (4) XNOR   (5) AND

14. What is the simplified Boolean expression of the following Karnaugh map?

BC \ A	00	01	11	10
0	1	0	0	1
1	1	0	1	1

(1) $\bar{A}B + AC$ (2) $\bar{B}C + AB$ (3) $AB + BC$ (4) $BC + \bar{A}C$ (5) $AB + \bar{C}$

15. Which of the following is /are Boolena expression(s) of the output X of the following logic circuit?

A - $AB + \overline{(A + B)}$

B - $AB + \bar{A}.\bar{B}$

C - $AB + A + B$

(1) A only   (2) A,B only   (3) A,C only   (4) B,C only   (5) A,B,C all

16. Consider the following statements about adder in digital logic circuits.

A - Half-adder receives two binary digit inputs

B - Half-adder gives two binary digits as outputs

C - A full-adder can be created using two half-adders

Which of the above is /are correct?

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

17. "The operating system ensures that the memory resources allocated to each program requires".
The main function related to this statement is called.

(1) Process management   (2) Network management   (3) Hardware management

(4) Memory management   (5) File management

18. In operating system, "……………………………. is a data structure containing the information required to manage the process scheduling of a specific process".
Which of the following is appropriate to fill the blank in?

(1) Context switching   (2) Process control block (PCB) (3) Scheduler

(4) Swapping   (5) Paging

19. The operating system uses various ways to make space allocation for the files. Among them,
"………………………………… creates a table of pointers at the time the file is created".
Which of the following is appropriate to fill the blank in?

(1) Linked allocation   (2) Harddisk allocation   (3) Contiguous allocation

(4) Indexed allocation   (5) Resource allocation

20. In operating system, "………………. is a hardware component that maps the addresses between virtual memory and physical memory".
Which of the following is appropriate to fill the blank in?

(1) Memory management unit (MMU)

(2) Process control block

(3) Scheduler

(4) Page table

(5) Page fault

21. In operating system,"……………………….. helps to increase the accessing speed of file by consolidating fragmented files on a harddisk". Which of the following is appropriate to fill the blank in?

(1) Fragmentation   (2) Disk partition   (3) Defragmentation

(4) Task manager   (5) File manager

22. Consider the following statements about file allocation table (FAT).

A - Table has an entry for each file block

B - A directory is maintained for indexing the block

C - The directory of a table is indexed to the first block of the file

Which of the above is /are correct?

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

23. Consider the following statements about DNS server.

A - It resolves IP addresses to computers dynamically

B - It shares an Internet connection among many computers

C - It converts data packets receiving from private IP addresses into public IP address

D - It maps domain name to the corresponding IP address

Which of the above is /are correct?

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

24. Which of the following is a function of POP (Post Office Protocol)?
   (1) Monitoring network devices in the Internet
   (2) Helping users to receive e-mail messages from mail server
   (3) Sending e-mail messages to mail server
   (4) Transferring files from one computer to another in the Internet
   (5) Routing data packets in the Internet

25. In computer network, IP (Internet protocol) functions in ……………………….. layer of the OSI network reference model.
   Which of the following is appropriate to fill the blank in?
   (1) Physical   (2) Transport   (3) Network   (4) Datalink   (5) Application

26. Which of the following(s) is /are the characteristic(s) of TCP (Transmission Control Protocol) compared to UDP (User Datagram Protocol)?
   A - Connection-oriented
   B - Low overhead
   C - Ordered sequence of data packets
   D - Unreliable
   (1) A only   (2) A,B only   (3) A,C only   (4) B,C only   (5) B,D only

27. Which of the following is class B IP address?
   (1) 193.168.1.4   (2) 139.67.3.5   (3) 10.6.5.7   (4) 126.7.6.4   (5) 224.5.64.1

28. Consider the following statements about fiber optic cable.
   A - more expensive than twisted pair cable
   B - it has more attenuation in comparing with other copper cables
   C - data transmission speed is higher that co-axial cable
   Which of the above is /are correct?
   (1) A only   (2) B only   (3) C only   (4) A,C only   (5) A,B,C only

29. Consider the followings.
   A - Data encryption
   B - Digital signature
   C - Anti-virus software
   D - Phishing
   Which of the above can be considered as security methods for computer and data?
   (1) A only   (2) B only   (3) A,B,C only   (4) A,B,D only   (5) A,D only

30. In computer networks, which of the following is the correct order of data encapsulation from left to right?
   (1) frame, bit, packet, segment, data
   (2) segment, bit, frame, packet, data
   (3) bit, frame, packet, segment, data
   (4) packet, frame, bit, segment, data
   (5) data, packet, bit, frame, segment

31. How many subnets and hosts can be provided by the network address 172.16.0.0/19?

(1) 7 subnets, 30 hosts each

(2) 7 subnets, 2046 hosts each

(3) 8 subnets, 30 hosts each

(4) 7 subnets, 2046 hosts each

(5) 8 subnets, 8190 hosts each

32. Which of the following is a so ftware testing sequence performing during software development from left to right?

(1) Integration testing, user acceptance testing, unit testing

(2) Unit testing, user acceptance testing, integration testing

(3) Integration testing, unit testing, user acceptance testing

(4) User acceptance testing, unit testing, integration testing

(5) Unit testing, integration testing, user acceptance testing

33. Consider the following statements about software process models.

• Software tasks are divided with time slices for every release

• It is an iterative approach

• Stable and dynamic user requirements may be easily adapted

Which of the following is a software process model that has above these characteristics?

(1) Waterfall model

(2) Spiral model

(3) Agile model

(4) Prototyping model

(5) Rapid application development

34. "…………………….. will carry out preliminary activities such as identifying users' requirements, analyzing and defining problems during software development".

Which of the following is appropriate to fill the blank in?

(1) System analyst

(2) Software engineer

(3) Hardware technician

(4) Network administrator

(5) Database administrator

35. Which of the following is a non-functional requirement of the online e-banking system?

(1) Customer shall be able to check his / her bank transaction details

(2) Customer shall be able to know his / her account balance

(3) Customer shall be able to obtain an attractive software interface

(4) Customer shall be able to perform transactions

(5) Customer shall be able to order for new cheque book

36. Which of the following is considered as a closed system?

(1) School   (2) Human nervous system   (3) General purpose computer

(4) Radio   (5) Human digestive system

37. Consider the following statements about expert systems.

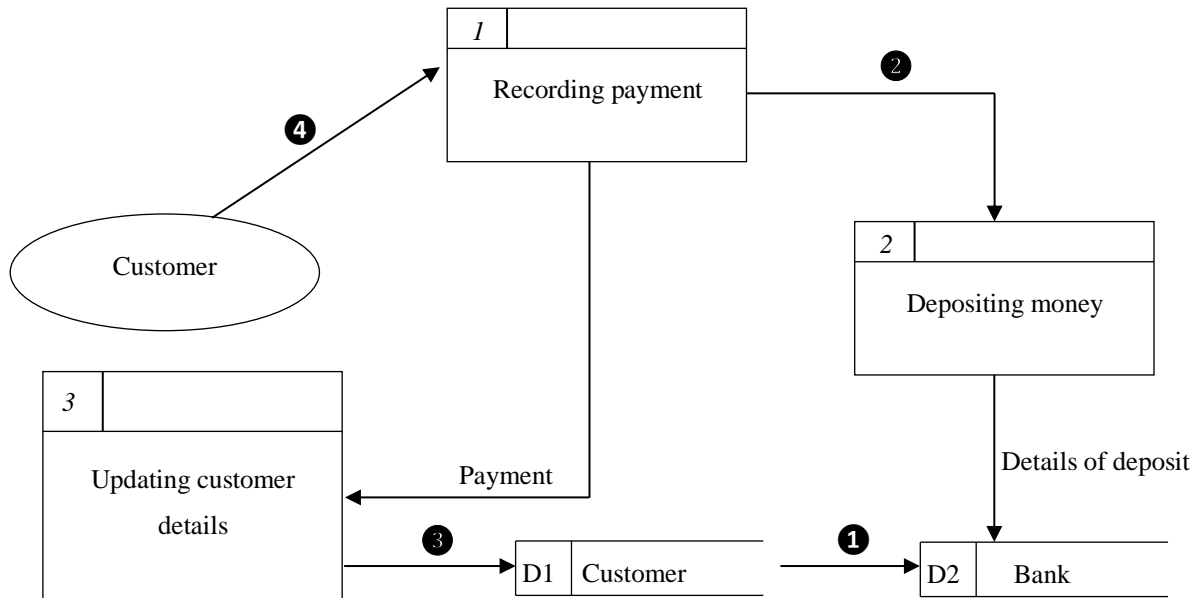A - It reveals the ability of making decision of human experts

B - It provides the solutions for complex problems using knowledge logically

C - It replaces human experts fully

Which of the above is /are correct?

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

38. Consider the following segment of a dataflow diagram (DFD) related to the transactions performed by a customer with bank.

Which of the following is /are invalid dataflow(s) in this segment of the dataflow diagram?

(1) ❶ only   (2) ❷ only   (3) ❸ only   (4) ❹ only   (5) ❶,❸ only

39. The so-called function of verifying whether a newly developed software meets the requirements of the users during software development.

(1) System design

(2) System maintenance

(3) System analysis

(4) System testing

(5) Coding

40. Which of the following is /are correct about the following statements about customized packages?

A – Ther are dveloped to fulfill the specific requirements of the users

B – Their most of the features are used by the users while comparing with commercial off the shelf packages

C – They are less expensive while comparing with commercial off the shelf packages

(1) A only   (2) B only   (3) A,B only   (4) A,C only   (5) A,B,C all

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[End