



G.C.E. A/L Examination March - 2017

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Grade :- 12 (2018)

Information & Communication
Technology

3 hours

Part – I

Answer all questions.

- Which of the following statement is correct regarding the generation of computer?
 - ENIAC computer is a first generation computer.
 - EDSAC computer is a third generation computer.
 - Microprocessor was used in Analytical engine which is designed by Charles Babbage.
 - Apple –II computers are second generation computers.
 - Pentium type computers are designed in 1950's.
- Who invented EDSAC(Electronic Delay Storage Automatic Calculator)?
 - John von Neumann
 - John Presper Eckert and John Mauchley
 - Howard Aiken
 - Charles Babbage
 - Maurice Wilkes
- Which one of the following considered as an information?
 - Numbers, Characters.
 - Processed meaningful outputs.
 - Images stored in a computer.
 - Temperature read by a sensor.
 - Data transfer speed between two computers is 2 mbps.
- Which of the following information system helps to plan and control the business processes in many places through the integrated software and database of an organization?
 - Transaction processing system
 - Management information system
 - Enterprise system
 - Expert system
 - Decision support system
- Iterative incremental software process through the waterfall model step is called as _____.
 - Prototype
 - Spiral model
 - Rapid Application Development
 - Unified process
 - Network model

6. A - Feasibility study
C-Logical design
- B-Requirements analysis
D- Implementation
- What are the above phases are included in structured system analysis and method (SSADM)?
- 1) A,B Only 2) B,C Only 3) A,B,C Only
4) C, D Only 5) A, B, C, D All
7. Which of the following statement is correct regarding the **system**?
- 1) Automatic washing machine is a closed system.
2) Automatic teller machine (ATM) is an example of an expert system.
3) System never gives output to the outside environment.
4) All the systems get the input from the outside and give the output to the outside.
5) System consists of many sub systems which are interact with each other.
8. Which of the following device is not in use to gather data automatically in a computer system?
- 1) Optical character reader (OCR)
2) Magnetic ink character reader (MICR)
3) Magnetic stripe reader
4) Sensor
5) Touch screen
9. Two's complement of (-19)and 36in 8 bits are,
- 1) 00010011,00100100 2) 11101100,11110011 3) 11101101,00100100
4) 10101101,11110100 5) 11100111,11011100
10. $62_8 + A1_{16} =$
1) 322_8 2) 323_8 3) 303_8 4) 302_8 5) 161_8
11. The user must to enter a telephone number with 10 digits with the format of xxx-xxxxxxx when register to an online system. Which of the following data validation method is **not** suitable for the above situation?
- 1) Format check 2) Length check 3) Limit check
4) Presence check 5) Type check
12. Computation method of (-45-76)using two's complement is,
- 1) $(-45)-(+76)$ 2) $(-45)+(+76)$ 3) $(-45)-(-76)$
4) $(-45)+(-76)$ 5) $(+45)+(-76)$
13. Consider the following statements with respect to operating system.
A – The process of starting a computer is called “Booting”.
B – The Bootstrapping program to start a computer is stored in ROM of volatile memory.
C – BIOS is the first program runs when a computer is turned on.
Which of the above is/are correct?
- 1) A Only 2) A,B Only 3) B,C Only
4) A,C Only 5) A,B,C All

14. Consider the following statements about the software license.

A – It is illegal to copy purchased propriety software.

B – Unauthorized alteration in propriety software is called “software piracy”.

C – Approved to make changes and re distribution in open source software.

Which of the above is/are correct?

- 2) A Only 2) A,B Only 3) B,C Only
4) A,C Only 5) A,B,C All

15. Which of the following is used to store current state of a process, when a process is transferred one state to another state in an operating system?

- 1) Pages 2) Process Control Block– PCB 3) Context Switching
4) Scheduling 5) Virtual memory

16. From which state a process is transferred into running state in a process state transition of an operating system?

- 1) Ready 2) New 3) Block
4) Swapped out and waiting 5) Swapped out and blocked

17. MSD,LSD values of 19.082 is,

- 1) 1,9 2) 0,2 3) 1,2 4) 1,0 5) 9,2

18.



What is the equivalent logic gate of the above logic gate?

- 1) AND gate 2) OR gate 3) XOR gate 4) NOR gate 5) NOT gate

19. The value of $\bar{A} + A$ in Boolean logic is,

- 1) 1 2) 0 3) A 4) \bar{A} 5) 10

20. Which is the correct BCD value of 820_{10} ?

- 1) 100000100000 2) 100100100000 3) 010000010000
4) 111000000010 5) 110000110000

21. Equivalent of $X+(X+Y)$ is,

- A) $X+XY$ B) $X+Y$ C) Y D) $\overline{\overline{X+Y}}$
1) A,B Only 2) B,D Only 3) A,B,C Only 4) A,B,D Only
5) B,C,D Only

22.

```
BEGIN
    a = 5
    FOR x = 1 TO 30
        IF x = a THEN
            Display(a* 1)
            a = a + 5
        ENDIF
    NEXT x
END
```

What is the possible output of the above pseudocode?

- 1) Whole numbers from 1 to 30
- 2) Whole numbers from 1 to 5
- 3) Multiples of 5 between 1 - 50
- 4) Multiples of 5 between 1 - 30
- 5) 5 Only

23. t = [1,2,(3,[4]),5]
print(t[2][1])

What will be the output of above python statement when execute?

- 1) (3,4)
- 2) [3,4]
- 3) [4]
- 4) 4
- 5) 3

24. Intercom is an _____ system. Which of the following is most suitable to fill the blank in the above statement?

- 1) Expert
- 2) Office automated
- 3) Transaction processing
- 4) Management information
- 5) Enterprise resource planning

25. How many unique numbers can be assigned for letters and characters using Unicode system to represent the data in a computer?

- 1) 128
- 2) 255
- 3) 256
- 4) 65000
- 5) 65536

26. Consider the following statements about the relational database table.

- A –Column of a table is called record.
- B - Row of a table is called field.
- C – A table can be create without primary key.
- D - A relation between relational database tables are create by their fields.

Which of the above statements are correct?

- 1) A,B Only
- 2) A,C Only
- 3) A,C,D Only
- 4) C,D Only
- 5) A,B,C Only

27. Which of the following is an incorrect statement regarding the variables used in a computer programming?

- 1) Variables are used to store values when a program execute.
- 2) Variables are creating a memory spaces in the main memory.
- 3) The value of the variable never changes again.
- 4) An identifier as the label that names a variable.
- 5) `_myNameIsPeter` is a valid identifier in a program.

28. The main memory of a computer system is byte addressable and has a maximum usable size of 64KB. What is the minimum width of its address bus in bits?

- 1) 32 bits 2) 24 bits 3) 8 bits 4) 21 bits 5) 16 bits

29. Which of the following does not support more than one program at a time?

1. DOS 2. Linux 3. Windows 4. Unix 5. Mac OS

30. The address of the next instruction to be executed by the current process is provided by the _____. Which of the following word is suitable to fill in the blank?

- 1) Program counter 2) CPU register 3) Cache memory
4) Random Access Memory 5) Address bus

31. Which one of the following can be define as a valid identifier in a python program?

1. First.Name 2. FirstName 3. First@Name 4. 6FirstName 5. First Name

32. Which of the following function is done by process management in an operating system?

- 1) Manages memory 2) Handle files 3) Handle inputs
4) Handle more than one processes 5) Secure from virus

33. Consider the following statements on the flow chart.

A –The method of represent an algorithm using standard symbols.

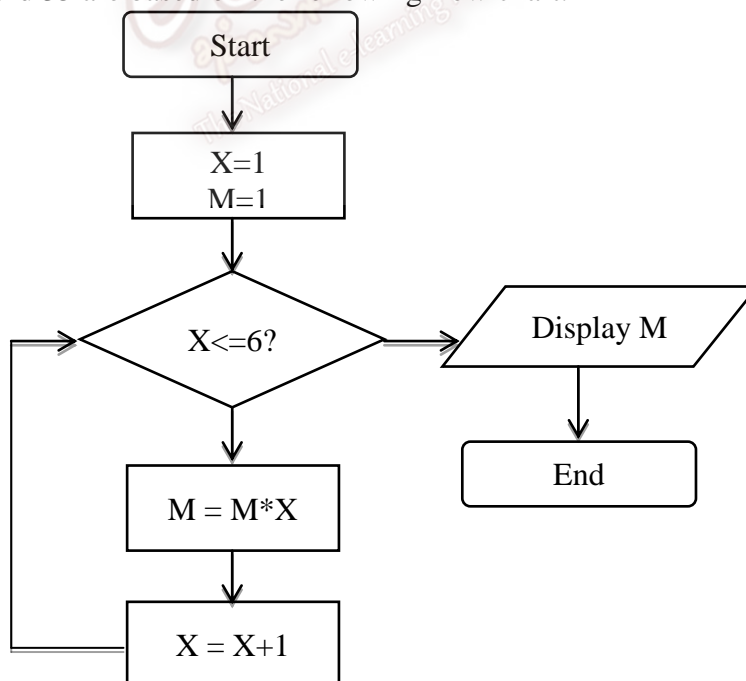
B – A flow chart must contain start and end points.

C – A flow chart can only represent using sequence and iteration structures.

Which of the above statement is/are correct?

- 1) A Only 2) B Only 3) C Only 4) A,B Only 5) B,C Only

Questions 34 and 35 are based on the following flow chart.



34. What is the output of the flow chart?

1. 120 2. 720 3. 24 4. 72 5. 600

35. Choose the most correct decision that terminates the iteration.

1. $X \leq 6$ 2. $X < 6$ 3. $X > 6$ 4. $X \geq 6$ 5. $X = 6$

36. Study the following statements on waterfall model of system development.
- A. It is more suitable for daily used projects that user requirements are well identified.
 - B. It is suitable to develop complex system with changes of requirements continuously.
 - C. This model is carried out step by step.

Which of the above statement/s is /are true.

1. A only 2. B only 3. A, B only 4. A, C only 5. A, B, C All

37.

	CD	00	01	11	10
AB		00	01	11	10
	00	1	1	1	1
	01	1	1	1	1
	11	1	0	0	0
	10	1	1	1	1

Which is the simplified form of the given karnaugh map?

- 1) $\bar{A} + \bar{B} + CD$ 2) $\bar{A} + \bar{B} + \bar{C}D$ 3) $\bar{A} + A\bar{B} + \bar{C}\bar{D}$
 4) $\bar{A} + \bar{B} + \bar{C}\bar{D}$ 5) $\bar{A} + B + \bar{C}\bar{D}$

38. Consider the following python statements.

- A - \$ This is main program
- B - # This program written by Sameera
- C - a = 1 #Value 1 assigned to variable a
- D - #a = 1 Value 1 assigned to variable a

Which of the above comments are written syntactically correct?

1. A, B Only 2. A, C Only 3. B, C, D Only 4. A, C, D Only
 5. A, B, C, D All

39. Which of the following describes the effect of disk defragmentation?

- (1) Increases data access speed of a hard disk.
- (2) Reduces data access speed of a hard disk.
- (3) Delete all files from the hard disk.
- (4) Creates logical partition inside the hard disk.
- (5) Reduces usable space of the hard disk.

40. Which of the following database model used in the modern systems?

- 1. Flat File model 2. Network model
- 3. Hierarchical model 4. Relational model
- 5. Spiral model

Part – II A – Structured Essay

Answer all questions on this paper itself. Write your answer in the space provided for each question.

1) a) State one's complement of decimal numbers 32_{10} and -56_{10} . Use 8 bits to represent a number.

b) Convert above one's complement numbers into two's complement numbers.

c) Explain how the computation method of $(32_{10}-56_{10})$ is done in two's complement.

d) Explain the steps how to convert the result obtained in part (c) above into decimal number.

2) a) What do you mean by “**Batch processing**”?

b) Write two advantages and two disadvantages of using batch processing?

c) For which activities, the maintenance phase which is last step of the system development life cycle needed?

d) Give two advantages of using prototype in information system development.

3) a) `a = 'peris' ; b = 'peris'`
Explain what happen when the above python statement execute by python interpreter.

b) Identify the following data types used in python program and write in the given blank.

- i. `'NASA'`
- ii. `[20,3.4,(5)]`
- iii. `(30,56,78)`
- iv. `{0:40,1:70,2:100}`

c) Write the output of the following python programs.

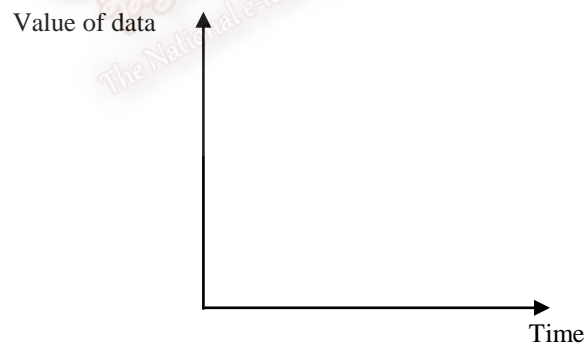
- i. `print("Pc"*3)`
- ii. `print(10%5+2**5*2)`
- iii. `print(not(3=3) or (5>2))`
- iv. `print(7.0 // 9 + 7)`

04)

a) Write two characteristics of third generation computers.

b) Write two biometric input devices which are used to identify a person.

c) Draw how will change the value of data with the time in the following graph.



d) What do you meant by plagiarism?
Explain how plagiarism will happen in the computer system.

Part – II B - Essay
Answer only any two questions.

- 1) There is an only one door to go inside the defense room in a building. That door always shut and locked.

Three devices are fixed in front of this door, one device for scan the finger print, another device for input secret code and last device for read the magnetic stripe of the identity card of a person.

The following conditions must be satisfied to open the defense room's door when a person goes inside the room.

A person must **scan his/her finger print and input secret code or input identity card** to that specific devices. The door will be open when the data are input above mentioned devices correctly.

The following table assigns Boolean values for the above functionalities.

Functionalities	Boolean value
The door is closed	1
The door is open	0
Finger print detect as correct	1
Finger detect as incorrect	0
Secret code identify as correct	1
Secret code identify as incorrect	0
Identity card is correct	1
Identity card is incorrect	0

- (i) Construct the truth table for the conditions that are open the door.
- (ii) Write the Boolean expression to represent the truth table constructed in the question (i).
- (iii) Simplify the Boolean expression derived in question (ii). (Write the rules clearly that used to simplify expression)
- (iv) Draw the logic circuit for the simplified expression.
- 2) a) Explain why compiler or interpreter is needed in a programming languages.
- b) Draw the flowchart to display total and average of any five numbers that are input by user one number at a time.
- c) Write the pseudocode for above mentioned problem.

3) There is a library in a University give their services to students with more than 10000 books and 2000 members. The details of books and members are store and maintain files by manual system. The university administration and the chief librarian has decided to use a computerized library management system to solve the problem arises on the current manual system.

- a) Write two disadvantages of manual system to store and maintain data in the library.
- b) Give two advantages to library staff by computerized this library management system.
- c) State two advantages to this university students by using computerized library management system.
- d) Give and explain any two automated system can be used to improve and make efficient for this computerized library system.

