



G.C.E. (A/L) Examination – November 2015

Conducted by Field Work Center, Thondaimanaru.

In Collaboration with the Zonal Education Office, Jaffna

Information & Communication Technology (ICT)

Grade - 13 (A/L) 2016

Part - I

Time : 2 Hours

Answer all the questions

1. Complete the following incomplete sentence.

“In 1980s Joseph Jacquard automated his weaving factory using a series of to record data”.

- (1) Adding machine (2) Punch Cards (3) Sound Card
(4) Differential Engine (5) Analytical Engine

2. Which of the following statement is true?

- (1) Herman Hollerith designed the Analytical Engine.
(2) The Pascaline developed by Charles Babbage could perform addition and subtraction.
(3) The Pascaline developed by Blaise Pascal read data from punch cards.
(4) The Differential Engine was developed by Blaise Pascal.
(5) Ada Lovelace is considered to be the first computer programmer.

3. Consider the following Boolean function.

$$f(x, y) = \bar{x}(x + y) + (y + x)(x + \bar{y})$$

Which of the following is the simplified form of $f(x, y)$?

- (1) x (2) y (3) \bar{x} (4) $x + y$ (5) \bar{y}

4. Which of the following network configuration would be completely affected in case of a failure of any node (computer)?

- (1) Star (2) Ring (3) Tree (4) Mesh (5) Bus

5. Which of the following device is used to separate voice and data into relevant end devices within a home telephone network?

- (1) Hub (2) Router (3) Splitter (4) Gateway (5) Modem

6. Which of the following is not considered as magnetic storage device?

- (1) Jaz disk (2) Zip disk (3) Floppy disk (4) Punch card (5) Recording tape

7. Which of the following technology is used as internal cache memory?

- (1) SRAM (2) DRAM (3) EEPROM (4) PROM (5) RDRAM

8. What is the equivalent form(s) of the following Boolean expression?

$$f(x, y, z) = \bar{x}y + xy\bar{z} + xyz$$

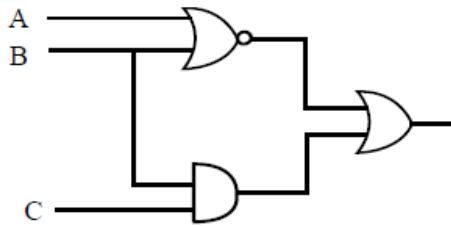
- A – $\bar{x}y + y$ B – y C – x D – $\bar{x}y + x$ E – $\bar{x}y + xy$

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

9. $AB_{16} + 456_8 =$

- (1) ABC_{16} (2) $D9_{16}$ (3) $1D9_{16}$ (4) AC_{16} (5) $AB2_{16}$

10. Consider the following combinational logic gate.



What is the simplified result of the above combinational logic gate?

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

11. Consider the following statements regarding the components of a system.

A - Input to a system could take a manual or automated method.

B - 'Processing' component is important as it supports to improve the quality of the input.

C - The output of a system could become an input of another system.

Which of the above statements is/are false?

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

12. What is the most practical method to remove a software application from a personal computer (PC)?

- (1) Delete all files of the software application
(2) Remove the icon for the application
(3) Uninstall the software application
(4) Delete the Folder of the software application
(5) Back-up the software application

13. Which of the following software is designed to be able to modify the source code of the programs?

- (1) Compilers (2) Open Source (3) Freeware
(4) Proprietary (5) Shareware

14. Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called.

- (1) Fragmentation (2) Paging (3) Mapping
(4) Virtual memory (5) Swapping

15. In virtual memory system of an operating system, the page table contains.

- (1) base address of each page in physical memory (2) page offset
(3) page size (4) index
(5) driver

16. Which of the following statements is correct with respect to the HTML document?

- (1) The ` ` will display a new line between words "love" and "HTML".
(2) The `&` will display the output "&".
(3) The `<hr/>` tag will display a border around the text.
(4) The `>` will display a `<` symbol.
(5) The `` tag will display bold text.

17. Which of the following attribute is not available for the IMG tag?

- (1) src (2) lang (3) width (4) usemap (5) alt

18. Which of the following HTML code segment can be used to embed a video in an HTML page?

- (1) <embed href = "myvideo.wmv" width ="640" height ="400"> </embed>
(2) <embed style = "myvideo.wmv" width ="640" height ="400"> </embed>
(3) <src embed = "myvideo.wmv" width ="640" height ="400"> </src>
(4) <embed link = "myvideo.wmv" width ="640" height ="400"> </embed>
(5) <embed src = "myvideo.wmv" width ="640" height ="400"> </embed>

19. Consider the following statements regarding the structure of an HTML document.

- A – The TITLE element is a sub element within the HEAD element.
B – The BODY element contains the actual contents of the document.
C – An HTML document starts with the DOCTYPE element tag <!DOCTYPE HTML>

Which of the above statement(s) is/are correct?

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

20. Which of the following code will create the following lists on the web browser?

1. Coffee

- i. Black
- ii. Milk
- iii. Cappuccino

2. Tea

- c. Black
- d. Milk
- e. Green

```
(1)
<ol> <li> Coffee </li>
  <ol start="1" type="i">
    <li> Black </li><li> Milk </li><li> Cappuccino </li>
  </ol>
  <li> Tea </li>
  <ol start="3" type="a">
    <li> Black </li><li> Milk </li><li> Green </li>
  </ol>
</ol>
```

```
(2)
<ol> <li> Coffee </li>
  <ol start="1" type="i">
    <li> Black </li><li> Milk </li><li> Cappuccino </li>
  </ol>
  <li> Tea </li>
  <ol start="1" type="a">
    <li> Black </li><li> Milk </li><li> Green </li>
  </ol>
</ol>
```

```

(3)
<ol> <li> Coffee </li>
      <ol start="1" type="i">
        <li> Black </li><li> Milk </li><li> Cappuccino </li>
      </ol>
      <li> Tea </li>
      <ol start="3" type="c">
        <li> Black </li><li> Milk </li><li> Green </li>
      </ol>
    </ol>

```

```

(4)
<ol> <li> Coffee </li>
      <ol start="1" type="a">
        <li> Black </li><li> Milk </li><li> Cappuccino </li>
      </ol>
      <li> Tea </li>
      <ol start="3" type="a">
        <li> Black </li><li> Milk </li><li> Green </li>
      </ol>
    </ol>

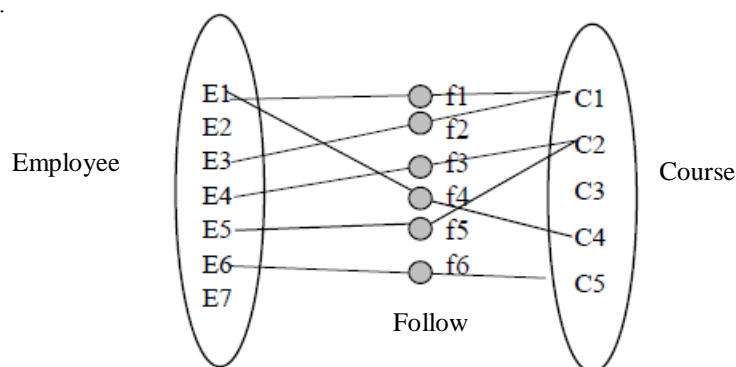
```

```

(5)
<ol> <li> Coffee </li>
      <ol start="a" type="i">
        <li> Black </li><li> Milk </li><li> Cappuccino </li>
      </ol>
      <li> Tea </li>
      <ol start="3" type="a">
        <li> Black </li><li> Milk </li><li> Green </li>
      </ol>
    </ol>

```

21. Following is a mapping of instances of Employee and Course entities related by the relationship named “follow”.



Which of the following is true for the mapping of the above relation named “Follow”?

- A - Each employee follows a Course.
- B - An Employee may follow many Courses.
- C - Some Employees may not follow a Course.

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

22. In HTML, which pair of tags is used to define a table row and a table cell respectively?

- (1) TH, TR (2) TD, TR (3) TR, TH (4) TR, TD (5) TD, TH

23. Consider the following statements regarding a relation in a relational database.

- A – Each relation in a database should have a unique name.
- B – Primary key of a relation should be the first column.
- C – Intersection of each row and column is single valued.
- D – Each attribute within a relation has a unique name.

Which of the above is/are true about a relation?

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

24. Consider the followings.

- A – Frequency Division multiplexing
- B – Code Division Multiplexing
- C – Time Division Multiplexing
- D – Digital Division Multiplexing

Which of the above is /are the multiplexing techniques used for media sharing?

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

25. In relational databases, “Data Redundancy”.

- A - can lead to inconsistency of data.
- B - is reduced by normalization.
- C - has no effect on data integrity.
- D - is a problem with traditional file systems.

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

26. Consider the relation below and the given functional dependency (FD).

Employee (EmpID, Name, Address, Phone, Father, Skills)

FD : Address → Phone

- A – Relation Employee is currently in 3NF.
- B – Relation Employee is in 1NF.
- C – The relation can be further decomposed as Employee (EmpID, Name, Address, Father, Skills) and Emp_Phone (Address, Phone)

Which of the above statements is/are correct?

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

27. Determining the requirements of the new system is carried out during which phase of the traditional systems development life cycle is called.....

- (1) Systems Design (2) Testing (3) Systems Analysis
(4) Implementation (5) Review

28. “..... feasibility is a measure of the cost-effectiveness of a project or a solution”.

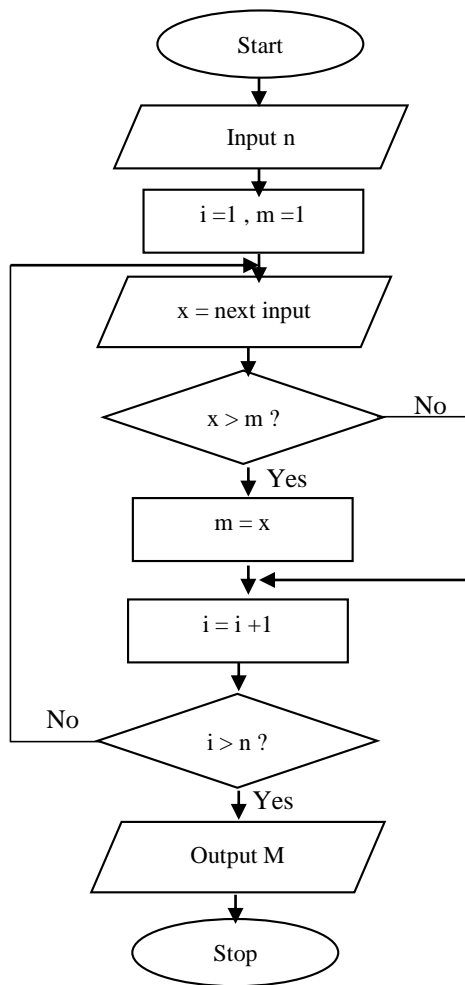
Select the phrase suitable to complete the above statement.

- (1) Technical (2) Economical (3) Operational
(4) Schedule (5) Legal

29. Which of the following task is carried out during the systems implementation phase of traditional systems development life cycle?

- (1) User training (2) Testing newly developed system
(3) Designing user interfaces (4) Gathering requirements of the new system
(5) Reviewing existing system

30. Consider the following Flowchart.



What is the final result if the inputs are given sequent as 5 and 8?

- (1) 5
- (2) 1
- (3) 8
- (4) It terminates the loop
- (5) It again asks another input.

31. The type of information system that captures and reproduces the knowledge of an expert problem solver using Artificial intelligence (AI) technology is known as a/an.

- (1) Transaction processing system.
- (2) Executive information system
- (3) Expert system.
- (4) Embedded System.
- (5) Office Automation System.

32. “..... is the concept in which a process is copied into main memory from the secondary storage according to the requirement”.

- (1) Paging
- (2) Demand paging
- (3) Segmentation
- (4) Swapping
- (5) Scheduling

33. Consider the following statements regarding list in python programming language.

- A - A list is a sequence of values.
 - B - A list can contain any types of data.
 - C - Empty list could be created.
 - D - List is mutable object.
- (1) A only (2) B only (3) A , C only (4) C, D only (5) A, B, C, D all

34. What is the output of the following python statement?

- ```
print (6/2.0+3*2-1/2)
```
- (1) 8
  - (2) 8.0
  - (3) 8.5
  - (4) 9.0
  - (5) 7.

35. What is the output of the following python program?

```
t = ['a','b','c']
t[1:3]=['x','y']
print (t)
```

- (1) ['a', 'b', 'c']      (2) ['a', 'x', 'y']    (3) ['x', 'y']      (4) ['a', 'b', 'c','x','y']    (5) ['a']

36. What is the output of the following python program?

```
A = [1,2,3]
b = [1,2,3]
r = a is b
print (r)
```

- (1) True                      (2) False              (3) true              (4) false              (5) [1,2,3]

37. Advantages of B2C commerce to customers are:

- A - Wide variety of goods can be accessed and comparative prices can be found.
- B - Shopping can be done at any time.
- C - Privacy of transactions can be guaranteed.
- D- Security of transactions can be guaranteed.

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

38. In a Data flow diagrams (DFD), data cannot flow between a store and.

A- a store                      B - a process                      C - an external entity

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

39. Output of the python statement print ([1,2]\*2) is.

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

40. During system study, data can be collected through.

A – Questionnaire                      B – Interviews                      C - On-site observations

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

41. Which of the following is/are the benefits of e-marketing?

A - Speed                      B - Reach                      C - Efficiency  
D - Low Cost                      E – Target customers

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

42. What is the result of (4 >> 2) in a python program?

- (1) 2                      (2) 1                      (3) 4                      (4) 5                      (5) 3

43. Consider the following statements regarding computer programs.

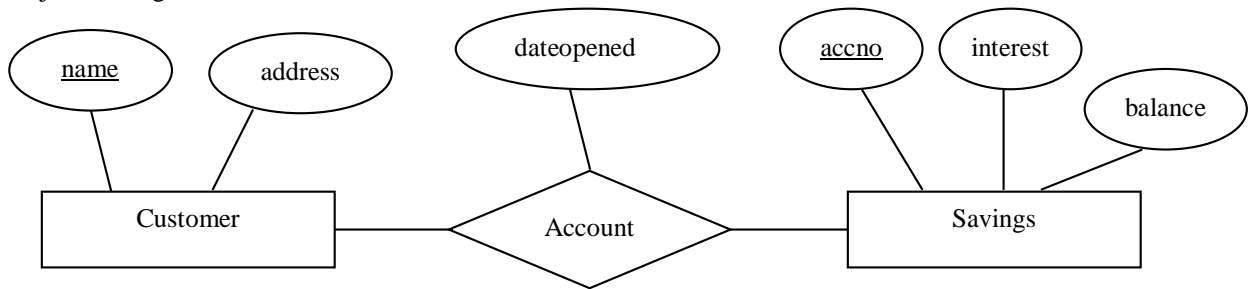
A – Syntax is the structure of a program.  
B – Semantics is the meaning of a program.  
C – Debugging is the process of finding and removing any kinds of programming errors.  
Which of the above is/are correct?

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

44. Correct HTML tag for the largest heading is.

- (1) <head>      (2) <h6>                      (3) <heading>                      (4) <h1>                      (5) <h4>

45. A bank has savings accounts. A customer may open many savings accounts and the bank does not allow joint savings accounts.



Which of the following is/are the most suited relation(s) if the above diagram is mapped into a relational model?

- A – Customer (name, address)                      B – Savings (accno, interest, balance)  
 C – Account (name, accno, dateopened)            D – Savings (accno, interest, balance, name, dateopened)  
 (1) A only      (2) B only      (3) C only      (4) A, D only      (5) A, B, D only

46. In the relational model, the number of attributes and number of tuples in a relation are termed as ..... and.....respectively.

- (1) Cardinality, domain                      (2) Degree, cardinality                      (3) Domain, degree  
 (4) Cardinality, degree                      (5) Domain, cardinality

47. Desirable characteristic(s) of a memory system is /are.

- A – High speed                      B – Low power consumption                      C – High density  
 (1) A only      (2) B only      (3) C only                      (4) A, B only      (5) A, B, C all

48. Consider the two tables, Department and Employee. If many employees are working for a department and only one employee can work for one and only one department, in which table should the corresponding foreign key be placed?

- (1) Foreign key needed only in Department table  
 (2) Foreign key needed only in Employee table  
 (3) Foreign key needed in both tables  
 (4) A new table has to be defined including the primary keys of both Employee and Department tables.  
 (5) No foreign keys should be used.

49. Consider the followings regarding database normalization.

- A - 1NF contains multi values and no repeating values.  
 B - 2NF does not contain multi values and contains partial dependency.  
 C - 3NF does not contain any transitive dependency.

Which of the following is/are correct?

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

50. Consider the following statements regarding user defined function in python program.

- A - A function is a named sequence of statements that performs a computation.  
 B - When creating a variable inside a function, it is called local variable.  
 C - Functions can make a program smaller by eliminating repetitive code.

Which of the above is/are correct?

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

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