



General Certificate of Education (Advanced Level) Support Seminar-2013

Sample paper:- Information & Communication Technology 1

Preparation:- Ministry of Education

Duration:- Two hours

Instruction :

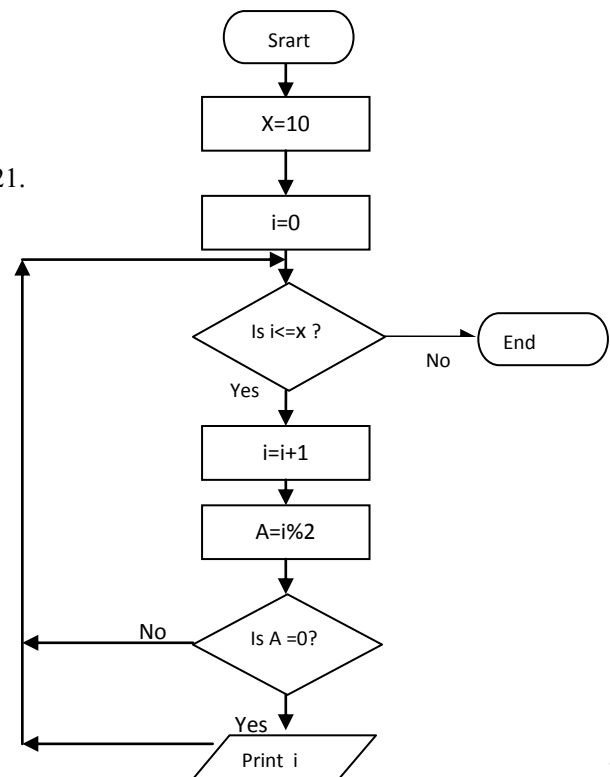
- Answer all the questions.
- Use of calculators is not allowed.
- In each of the question 1 to 50, pick one of the alternatives from (1), (2), (3), (4), (5) which is correct or most appropriate.

1. Who developed the first ,”Automatic Sequence Controlled Calculator”.
(1) Howard Aiken (2) Charles Babbage (3) Blaise Pascal
(4) Ada Augusta Lovelace (5) Gottfried Wilhelm Von
2. “.....technology was used in fourth generation computers.” Which of the following is the most suitable word to fill in the balnk.
(1) Vacuum tube (2) Transistor (3) Integrated circuit
(4) VL-Transistor (5) Micro processor
3. Which of the following consist of correct sequence of Data Processing Life Cycle.
(1) Data input, Data collecting, Data processing,Data storing ,Data Output.
(2) Data collecting, Data processing, Data storing, Data input, Data Output.
(3) Data collecting, Data input, Data processing,Data storing, Data Output.
(4) Data input, Data collecting, Data storing, Data processing,Data Output.
(5) Data input, Data processing, Data collecting,Data storing, Data Output.
4. Consider the following memory types.
A. Read Only Memory
B. Secondary Storage
C. Register Memory
D. Flash Memory
E. Random Access Memory
Which of the above can be classified as a Volatile Memory.
(1) (A) and (B) (2) (A) and (C) (3) (A) and (D) (4) (C) and (E) (5) (D) and (E)
5. 351_{16} (hexa decimal) is equals to...
(1) 1521_8 (2) 849_8 (3) 1251_8 (4) 6504_8 (5) $1D_8$

14. Which of the following is the equivalent boolean expression to $A \oplus B \oplus C$
- (1) $A'BC + AB'C + ABC'$ (2) $AB'C' + A'BC' + A'B'C$
 (3) $A'BC + AB'C + ABC' + ABC$ (4) $AB'C' + A'BC' + A'B'C + ABC$
 (5) $AB' + A'B + AC' + A'B + BC' + B'C$
15. A. In Full-duplex data communication always transmission takes place to both direction.
 B. A student responds to teacher after a question is asked by the teacher in a class. This is an example of half duplex communication.
 C. Television broadcasting is an example of half duplex communication.
 Which of the above statement/s is/are true about communication.
- (1) (A) only. (2) (B) only. (3) (C) only.
 (4) (A) and (B) only. (5) (B) and (C) only.
16. A. The capacity of DVD (digital versatile disk) is higher than a CD (compact disk).
 B. Data writing on a CD take place with pits and bumps.
 C. Lazer rays are used to read data on CDs and DVDs.
 Which of the above statement/s is are true about data storing in optical media.
- (1) (A) only. (2) (A) and (B) only. (3) (A) and (C) only.
 (4) (B) and (C) only. (5) All of the above.
17. Which of the following operating system is suitable for a Aircraft Defense System.
- (1) Real time (2) Multi Threading (3) Single user-Single tasking
 (4) Single user-Multi tasking (5) Multi user-Multi tasking
18. Study the following statements on waterfall modle of system development.
- A. It is more suitable for daily used projects that user requirements are well identified.
 B. It is not possible to follow this modle in data system projects always in real world.
 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) and (B) only.
 (4) (B) and (C) only. (5) All of the above.
19. Autonomous, Problem Solving computational entities capable of effective operation in dynamic and open environments are defined as.....
- (1) Evolutionary computating
 (2) Agent Technology
 (3) Ubiquitous computing
 (4) Von-Neumann concept
 (5) Quantum computing

Consider the given flow chart to answer question 20 and 21.

20. What are the control structures used in the Flow chart?
- (1) Selection only.
 (2) Selection and Sequence only.
 (3) Sequence and Iteration only .
 (4) Selection and Iteration only.
 (5) Selection, Sequence and Iteration.
21. Which of the following is true about the flow chat.
- (1) It stops when i equals 10.
 (2) It stops when i equals 11.
 (3) It displays 0, 2, 4, 6, 8,10.
 (4) It displays integers from 1 to 10.
 (5) It displays 2, 4, 6, 8 only.



22. Which of the following is equivalent to $F_{(X,Y)} = (A' \cdot B')' \cdot (A + B)'$ after simplifying the following Boolean statement by using De Morgan theorem.
 (1) 0 (2) 1 (3) A (4) B (5) A.B
23. Which of the following is the output of python statement `>>>(3+15)%4+3**2`
 (1) 6 (2) 9 (3) 11 (4) 25 (5) 49
24. Which of the following is used to send data packets directly to its receiving device in a LAN.
 (1) Hub (2) Switch (3) Bridge (4) Repeater (5) Modem
25. Study the following statements about the given data base table.

STUDENT
INDEX_NO
NAME
DOB
SEX

- A. Student is an entity.
 B. Index NO field can be used as primary key.
 C. NAME, DOB are two attributes of table.
 D. Collection of data in all attributes of a certain student is named as a record.
 Which of the above statement/s is/are true.
 (1) (A) and (B) only. (2) (B) and (C) only. (3) (C) and (D) only.
 (4) (A), (B) and (C) only. (5) All of the above.
26. Study the following statements regarding object relational model.
 A. Object oriented computer languages are used to develop a data management system.
 B. It can be used in computer aided drawing.
 C. It is also known as Extended Relational Model .
 Which of the above statement/s is/are true.
 (1) (A) only. (2) (B) only. (3) (A) and (B) only.
 (4) (B) and (C) only. (5) All of the above.
27. Study the following statements regarding **physical schema** for the development of data management system.
 A. It is close to physical storage.
 B. It creates a supporting data structure called index.
 C. It is used by database designers and database administrators.
 D. It is an abstracts of whole project.
 E. It explains data storing pattern.
 Which of the above statements are true.
 (1) (A), (B) and (C) only. (2) (A), (B) and (E) only. (3) (B), (C) and (D) only.
 (4) (B), (C) and (E) only. (5) (C), (D) and (E) only.
28. Which of the following statements clearly describes direct implementation in system development.
 (1) Introduction of new system with the existing system.
 (2) Execution of one segment and execute the other if the first segment is successful.
 (3) Introduction of new system after terminating of existing system.
 (4) Introduction of new system step by step.
 (5) Execution of both systems one after the other.
29. Consider the following HTML tag.
``
 A. The above HTML tag renders the image named "Rose.jpg" by the browser.
 B. The browser knows the size (width and height) of the image, without width and height.
 C. The Alt attribute provide alternative information for an image if a user for some reason can not view it.
 Which of the above statements are true.
 (1) (A) and (B) only. (2) (A) and (C) only. (3) (C) and (D) only.
 (4) (A), (B) and (C) only. (5) (A), (C) and (D) only.

Consider the given SQL statement to create “STUDENT” and “LENDING_BOOK” tables. And answer question 32 and 33.

<pre> CREATE TABLE LENDING_BOOK (ACCT_REG VARCHAR(10) NOTNULL, BOOK_NAME VARCHAR(20) NOTNULL, AUTHOR VARCHAR(25) NOTNULL, DESCRIPTION VARCHAR(75), ISSUED_DATE DATE, STUDENT_ID CHAR(5) NOT NULL, PRIMARY KEY (ACCT_REG)); </pre>	<pre> CREATE TABLE STUDENT (STUDENT_ID CHAR(5) NOTNULL, NAME VARCHAR(25) NOTNULL, BIRTHDAY DATE NOTNULL, ADDRESS VARCHAR(25) NOTNULL, PROVINCE CHAR(10), PRIMARY KEY (STUDENT_ID)); </pre>
---	---

32. Consider the following statements.

- A. “STUDENT_ID field can be used to connect STUDENT and LENDING_BOOK tables.
- B. It is compulsory to input data in to **DATE** data type fields of both the tables.
- C. A comma “,” can be used instead of “;” in PRIMARY KEY(STUDENT_ID));
- D. It is compulsory to place a comma “,” between two fields.

Which of the following statements are true.

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

33. Consider the following statements.

- A. STUDENT_ID is the FOREIGN KEY of LENDING_BOOK table
- B. It is not compulsory to input data to the STUDENT_ID field
- C. CHAR data type can be included in BIRTHDAY field of STUDENT table.
- D. It is compulsory to input data to PROVINCE field.

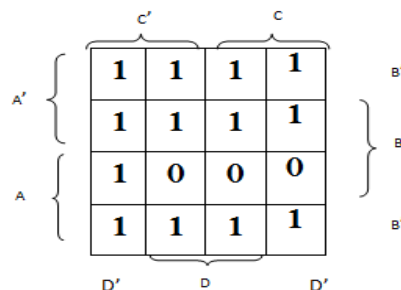
Which of the above statement/s is/are true.

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

34. Meaning of software piracy is

- (1) Stealing of software at home.
- (2) Coping software.
- (3) Stealing of software from manufacturing company.
- (4) Coping from purchased software.
- (5) Making of illegal copies of software on which the user has no copy right .

35. Consider the following Karnaugh map.



Which is the correct logic expression when you simplify it using given values.

- (1) $A' + AB' + C'D'$
- (2) $A' + B' + AD'C'$
- (3) $A' + B' + C'D'$
- (4) $C'D' + A'C' + A'C + B'$
- (5) $B'C + B'C' + A'C + C'D'$

36. Consider the following statements.

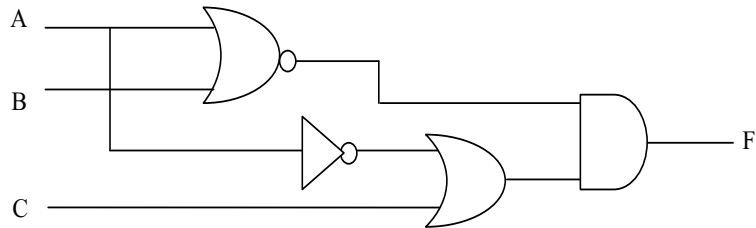
- A . Operating systems are Utility software.
- B . An operating system is needed to control hardware and to manage software.
- C. Apple Macintosh is Free & Open source operating system.

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

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

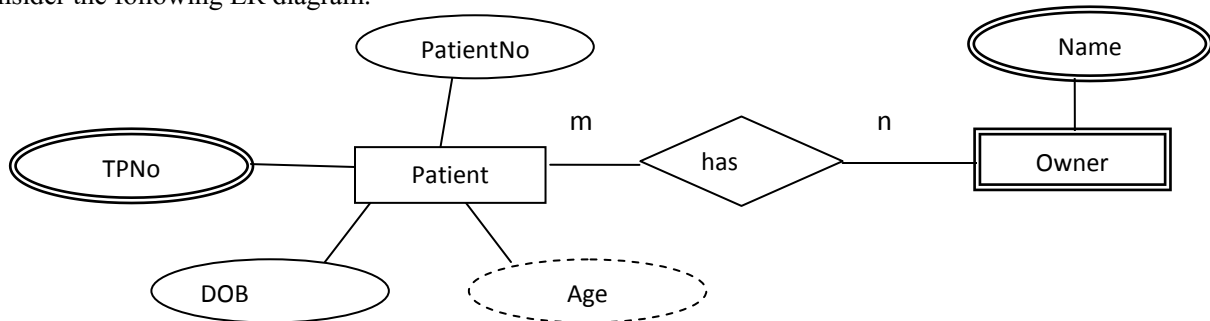
37. Which of the following is the correct Boolean expression that corresponds to output “F”.

- A. $(\overline{A+B}) + (A.C)$
- B. $(\overline{A} . \overline{B}) . (\overline{A}+C)$
- C. $(\overline{A+B})(A.C)$
- D. $(\overline{A+B}).(\overline{A}+C)$



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

38. Consider the following ER diagram.



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

- A. Owner is an Weak entity.
- B. m: n is the cardinality coefficient of above relationship.
- C. DOB is a “stored attribute” while “Age” is a derived attribute.

- (1) (A) only.
- (2) (A) and (B) only.
- (3) (B) and (C) only.
- (4) (A) and (C) only.
- (5) All of the above.

39. Consider the following statements.

- A. Fequent Refreshing take place in DRAM while SRAM has no such fequent refreshing.
- B. Cache Memory belongs to the category of SRAM
- C. Present day most of computers has SRAMS.

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

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

45. Consider the following python codes.

```
>>> List1=[5,6,7,8]
>>> List2=[9,10,11,12]
>>> L=List1+List2
>>> Print(L)
```

Which of the following is the output of it.

- (1) 5,6,7,8,9,10,11,12 (2) [5,6,7,8]+[9,10,11,12] (3) [5,6,7,8,9,10,11,12]
(4) (5,6,7,8)+(9,10,11,12) (5) List1[5,6,7,8]+List2[9,10,11,12]

46. Consider the following python codes.

```
def fun(a):
    i , c=1,a[0]
    while i<len(a):
        if (a[i] >c:
            c=a[i]
            i=i+1
    return i
print(fun([9,3,11,15,-1]))
```

Which of the following is the output of it.

- (1) -1 (2) 3 (3) 5 (4) 8 (5) 15

47. Consider the following incomplete python code segment that is used to arrange data items of “marks” data structure in descending order.

```
marks=[28,75,52,89,68]
datacount=len (marks)
for i in range(datacount-1):
    for k in range(i+1,datacount):
        if ..... marks[i],marks[k]=marks[k],marks[i]
```

Which of the following is the suitable statement to fill in the blank.

- (1) marks[i]<marks[k]; (2) marks[i]>maks[k]; (3) marks[i]=marks[k]:
(4) marks[i]<marks[k]: (5) marks[i]>marks[k]:

48. Consider the following python statement.

```
A=32.7
B={'Age':21,'Name':'Perera'}
C=(28,95,'Kamal')
D={5,10,15,'sarath'}
```

Which of the following contains relevant data types for A, B, C, and D respectively.

- (1) float, tuple, list, dictionary (2) integer, dictionary, list, dictionary
(3) float, dictionary, tuple, dictionary (4) float, tuple, dictionary, set
(5) float, dictionary, tuple, set

49. Consider the following python statement.

```
data=[25,28,30,40,85,92,100]
for i in data:
    if i>= 40:
        print(i, end=',')
```

Which of the following is the output.

- (1) 25, 28, 30
- (2) 25, 28,30,40
- (3) 85, 92, 100
- (4) 40, 85, 92, 100
- (5) 25, 38, 30, 37, 85, 92, 100

50. Consider the following python statement.

```
fo1=open('numbers.txt','r')
fo2=open('store.txt','w')
line=fo1.read()
data=(line.strip()).split(',')
forval in data:
    fo2.write("{}{0:d} \t {0:x} \t {0:b}\n".format(int(val)))
fo1.close()
fo2.close()
```

Contents of number.txt is given below.

```
2,5,10,12,15,20
```

Which of the following is the content of store.txt after execution of the program.

- (1) 2 5 10 12 15 20
- (2) 2 5 10 12 15 20
2 5 10 12 15 20
2 5 10 12 15 20
2 5 10 12 15 20
2 5 10 12 15 20
- (3) 2d 5x 10b 12n
2d 5x 10b 12n
2d 5x 10b 12n
2d 5x 10b 12n
2d 5x 10b 12n
- (4) 2 2 10
5 5 101
10 a 1010
12 c 1100
15 f 1111
20 14 10100
- (5) 2 5 10 12 15 20
2 5 a c f 14
10 101 1010 1100 1111 10100