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மேல் மாகாணக் கல்வித் திணைக்களம்
Department of Education - Western Province

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය 2022 - උපකාරක ප්‍රශ්න පත්‍රය 02
General Certificate of Education (Adv. Level) Examination 2022 - Model Paper 02

තොරතුරු හා සන්නිවේදන තාක්ෂණය - I
Information & Communication Technology - I

20

E

I

පැය තුනයි
Three Hours

Answer all the questions.

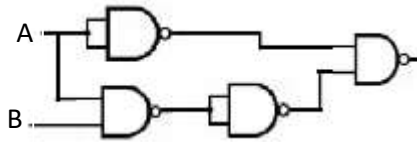
- Write your exam number in the given space on the answer sheet.
- For each question from 1 to 50, choose the correct or most appropriate answer from the answers (1), (2), (3), (4), (5) and put a circle (X) on the corresponding number on the answer sheet.

- Choose the statement that is not true about qualitative information
 - Quality information helps in knowledge development.
 - Creating quality information costs more.
 - Uses accurate data to create quality information
 - Quality information can be used for decision making.
 - In zero time, the value of quality information is very high
- The correct order of data processing life cycle is
 - Data Collection / Data Validity Check / Processing/ Output / Storage
 - Obsolete data elimination / data input / processing/ output / storage
 - Data input / processing/ output / storage
 - Data Collection / Data Input / Outdated Data Removal/ Processing/ Output / Storage
 - Data Collection / Processing / Output / Storage / Data Validity Check
- Misrepresentation of copyrighted software is
 - Licensed software must be purchased
 - Software with individual rights can be installed and used on multiple computers.
 - Software with individual rights installed on a computer can be used by several people.
 - The source code of proprietary software cannot be modified
 - Copying copyrighted software is illegal.
- Among the following storage devices, the device that provides the fastest data access is
 - Magnetic disk
 - Memory card
 - Periodic memory
 - Memory registers
 - Cell memory
- What is the eight bit two's complement of 78 ?
 - 10111100
 - 00111101
 - 01001110
 - 10110010
 - 10111100
- The binary equivalent of 10101110.110 is
 - 532.6₈
 - A7.6₁₆
 - 154.75₁₀
 - AE.C₁₆
 - 159.75₁₀

7) What is the decimal value of the binary number 10001010 which is two's complement of eight bits ?

- 1) -139 2) +139 3) -10 4) -118 5) +166

8) The Boolean expression represented by the following circuit is



- 1) A 2) B
3) A.B 4) A+B 5) 1

9) How many 2-input NANDs are needed to construct the boolean expression $A'.B + A.B'$ using only NAND gates ?

- 1) 4 2) 5 3) 6 4) 7 5) 8

10) What is the simplified boolean expression of $F = ((A+B)' + (A'.B))'$... is available.

- 1) AB 2) A+B 3) A' 4) A 5) B'

11) How many OR, AND and XOR gates are needed to set up a full adder using 2 half adders respectively ?

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

12) Which Boolean expression can be obtained for the following Kano map?

A \ B.C				
	00	01	11	10
0	0	0	1	1
1	1	1	1	1

- 1) A+B 2) A'+B 3) A'+B'
4) A.B 5) A'B'

13) The condition by which an action in the new state is placed in the ready state

- 1) long Term shedulling 2) Medium term shedulling
3) Action recovery shedulling 4) Short term shedulling
5) Central processing unit shedulling

14) Transition of an operation from one state to another state, whether due to a software/hardware interrupt or in the absence of such interrupt, even in normal circumstances. is called.

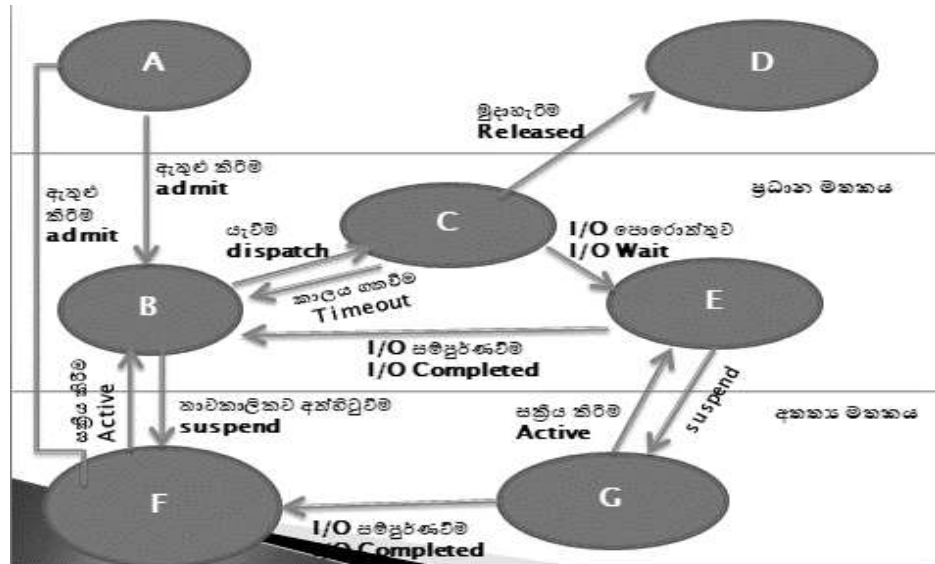
- 1) Context Switch 2) Blocked 3) Mapping 4) Swappedout 5) Terminated

15) Out of the following operating systems Flight control systems Best suited for

- 1) Single-user - multi-tasking systems 2) Single-user - single-tasking systems
3) Multi-user – multi-tasking systems 4) Real-time systems

5) Real-time single-user systems

16) In the process status diagram The response will be the status instances to be entered in order up to AG



- 1) A- Ready state , B- Create /new state , C- Running State , D- Terminated State , E- Blocked State , F- Swaped out and wait State , G -Swaped out and blocked State
- 2) A- Ready State, B- Create/New State , C- Running Status , D- Terminated State , E- Blocked State, F-swapped out and wait , G - Swaped out and blocked State
- 3) A- Create/New, B- swapped out and wait, C- Running State, D-Terminated State, E- Blocked State, F- Running State, G - Swaped out and blocked State
- 4) A- Create/New State, B- blocked State, C -Swaped out and wait State D- Terminated State, E- Blocked State, F- blocked State G - Swaped out and blocked State
- 5) A- Create/New State, B-Running State, C- Running State D- Terminated State E- blocked State G- Swaped out and blocked State

0	-1	
1		
2	10	
3	9	
4	7	← File A starts here
5		
6	3	← File B starts here
7	2	
8	-1	
9	0	
10	8	

- 17) The block size of the hard disk is 4KB.
Which of the following
The directory entry of a file File A ,
The directory entry of a file File B
The disk space allocated for the file A
the disk space allocated for the file B respectively
Choose the correct answer in the blank

- 1) 5,20 kb, 4,16kb 2) 4,16 KB, 3, 24KB
3) 20 KB, 16KB 4) 3,12KB, 5,20KB

- 18) In a hard disk, The last block of directory entry is -5, which of the following gives directory entry of 4,2 are represented respectively. The answer is

0	7
1	4
2	-1
3	1
4	-1
5	-1
6	5
7	6
8	9
9	2
10	3

- 1) 0,10,8
2) 6,1,0
3) 3,8,9
4) 10,9,8
5) 6,8,10

- 19) Layers that make data into chunks, packets and frames respectively are the given answer

- 1) Transport, Session, Data Link 2) Networking , Transport , Data Link
3) Applications, Networking, Sessions 4) Transport, Networking , Data link
5) Applications, networking , data link

- 20) The first and last usable IP addresses in a subnet are 195.150.10.129 and 195.150.10.190 respectively. what is the subnet mask ?

- 1) 255.255.255.0 2) 255.255.255.192 3) 255.255.255.224
4) 255.255.255.240 5) 255.255.255.128

- 21) Class C network 200.138.1.0 is subnetted by subnet mask number 255.255.255.252 . Here are the maximum number of subnets possible and the maximum number of addresses each subnet can have, respectively

- 1) 64,2 2) 2,64 3) 64,4 4) 4,64 5) 8,30

- 22) Choose the correct statement about connectors used for data transmission cables

- 1) M12 connectors are used to connect twisted pairs
2) BNC connectors are used to connect the coaxial cable
3) RJ45 connectors are used to connect fiber optics

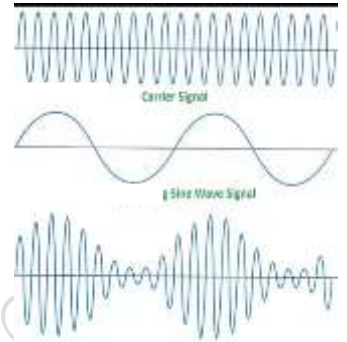
- 4) M12 connectors are used to connect the coaxial cable
- 5) RJ45 connectors are used to connect the coaxial cable

23) What is the subnet mask , if 5 subnets with at least 16 hosts are created ?

- 1) 255.255.255.192 2) 255.255.255.224 3) 255.255.255.240
- 4) 255.255.255.248 5) 255.255.255.32

The type of modulation depicted in this diagram is

- 1) Amplitude modulation
- 2) Frequency modulation
- 3) Phase Modulation
- 4) Amplitude shift Key
- 5) Frequency shift Key



25) What is the CSS statement with correct syntax?

- 1) P{ font-color: red ; font-family:verdana ;}
- 2) P { font:bold verdana 16pt}
- 3) P{ text-decoration: underline ; color:blue }
- 4) P{font:bold;verdana;16pt;}
- 5) P{ font: italic bold verdana ;}

26) Which of the following can store a single binary bit ?

- 1) Capacitor 2) Diode 3) Flip Flop
- 4) Half Adder 5) Full Adder

27) Which is the testing strategy that considers the internal workings of a program?

- 1) Black box testing 2) White box testing
- 3) Integration testing 4) Acceptance testing
- 5) Unit Testing

28) Publishing one's thoughts, words, statements and activities as one's own creations without mentioning the creators .

- 1) Piracy 2) Phishing 3) Plagiarism
- 4) Privacy 5) Copyright

29) Consider the following table rendered by a web browser

Name list of Patients

Name		Clinic No
Ann	Perera	2
Evon	Ranasinghe	

The above output will be the response containing the HTML code snippet

```
1)
<table border="1">
<caption> Name list of Patients</caption>
<tr> <th colspan="2">Name</th>
    <th>Clinic No</th></tr>
<tr> <td>Ann</td>
    <td>Perera</td>
    <td rowspan="2"> 2 </td></tr>
<tr> <td>Evon</td>
    <td>Ranasinghe</td> </tr>
</table>
```

```
2)
<table >
<tr> <th colspan="2">Name</th>
    <th>Clinic No</th></tr>
<tr> <td>Ann</td>
    <td>Perera</td>
    <td rowspan="2"> 2 </td></tr>
<tr> <td>Evon</td>
    <td>Ranasinghe</td> </tr>
</table>
```

```
3)
<caption> Name list of Patients</caption>
<table border="1">
<tr> <th rowspan="2">Name</th>
    <th>Clinic No</th></tr>
<tr> <td>Ann</td>
    <td>Perera</td>
    <td colspan="2"> 2 </td></tr>
<tr> <td>Evon</td>
    <td>Ranasinghe</td> </tr>
</table>
```

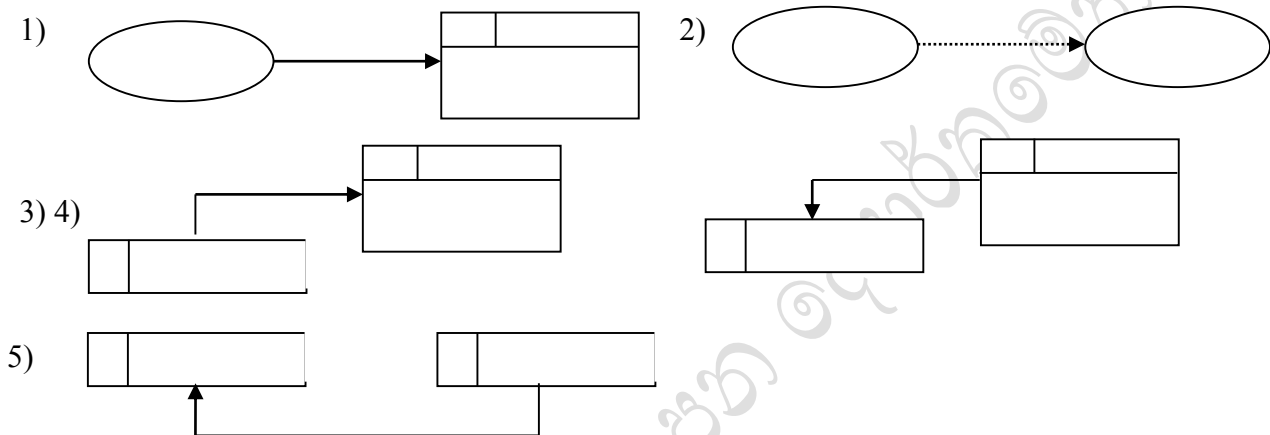
```
4)
<caption> Name list of Patients</caption>
<table border="1">
<tr> <th colspan="2">Name</th>
    <th>Clinic No</th></tr>
<tr> <td>Ann</td>
    <td>Perera</td>
    <td rowspan="2"> 2 </td></tr>
<tr> <td>Evon</td>
    <td>Ranasinghe</td> </tr>
</table>
```

```
5)
<caption> Name list of Patients</caption>
<table >
<tr> <th colspan="2">Name</th>
    <th>Clinic No</th></tr>
<tr> <td>Ann</td>
    <td>Perera</td>
    <td rowspan="2"> 2 </td></tr>
<tr> <td>Evon</td>
    <td>Ranasinghe</td> </tr>
```

30) Which of the following clauses describes a non-functional requirement of an ATM system?

- 1) Allowing the user to withdraw money by the system
- 2) Enable printing of a receipt at the end of the transaction
- 3) ATM screen should be touch sensitive
- 4) The system enables the user to deposit money
- 5) The system displays the account balance to the user at the end of the transaction

31) according to data for modelling what is incorrect data flow modelling.



32) Not an example of a Database model

- 1) Flat file model
- 2) Hierarchical model
- 3) Network model
- 4) Spiral model
- 5) Relational database models

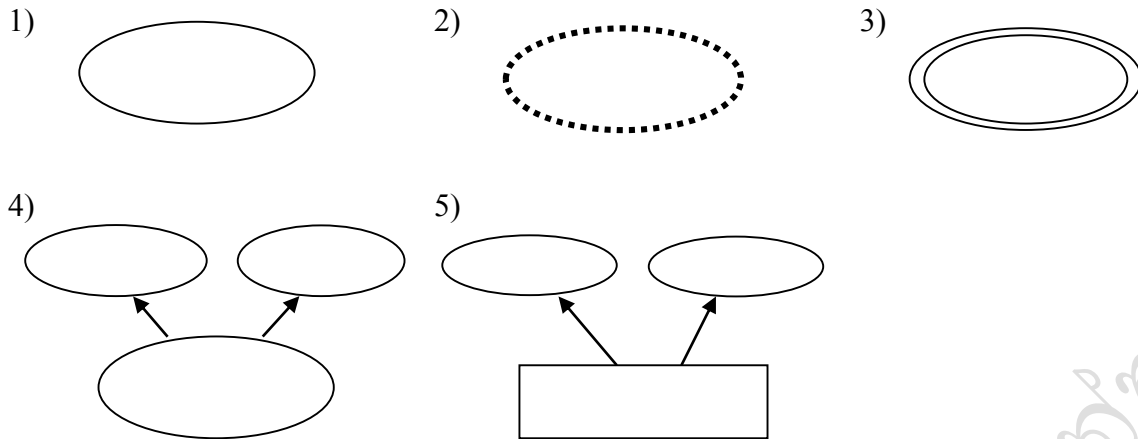
33) Select the statement which is not correct regarding the record of a table

- 1) Each record represents a single object in a table.
- 2) The number of records in a table cannot be zero.
- 3) A table can have only one record.
- 4) A table can have more than one records.
- 5) A table's records cannot be duplicated.

34) Select the correct statement regarding keys used in a database

- 1) The field/fields that help to uniquely identify a record in a table can be called the candidate key of that table.
- 2) The primary key field can't be null value.
- 3) After selecting the primary key, the remaining candidate keys are called composite keys.
- 4) Alternate key helps to build relationship between two tables.
- 5) If two fields in a table are used to uniquely identify a record, those fields are called foreign keys of the table.

35) Multivalued attributes are represented in a physical relationship diagram



36) Choose the most correct sentence/s regarding a table in a relational database

- A. Records and fields of a table should not be duplicated
- B. table's records and fields are not in order.
- C. Table name must be unique
- D. A table must have more than one attribute

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

Use the table below to answer questions 37 and 38

Employee Table

EMPNO	ENAME	JOB	MGR	HIREDATE
7369	SMITH	CLERK	7902	17-Dec-80
7499	ALLEN	SALESMAN	7698	20-Feb-81
7521	WARD	SALESMAN	7698	22-Feb-81
7566	JONES	MANAGER	7839	02-Apr-81
7698	BLAKE	MANAGER	7839	01-May-81

37) The SQL code to output the name and number of all employees with job "Clerk" .

- 1) Select * from employee where job='clerk';
- 2) Select ename , empno from employee where job='clerk';
- 3) Select ename , empno from employee where job=clerk;
- 4) Select * from employee where job=clerk;
- 5) Select ename , empno , job from employee where job='clerk';

38) The SQL code to insert the phone number "TEL_NO" as a new variable is:

- 1) Alter table Employee Add Column TEL_NO char(10);
- 2) Alter table Employee Insert Column TEL_NO char(10);
- 3) Alter table Employee Insert TEL_NO char(10);
- 4) Alter Employee Add Column TEL_NO char(10);
- 5) Alter table Employee Add TEL_NO char(10);

39) In data `definition language (DDL) Which of the following is an SQL statement containing

- 1) INSERT 2) DELETE 3) UPDATE 4) ALTER 5) SELECT

40) On the Internet, the name given to the websites that are set up to get most of the information that people need in one place is

- 1) E-commerce Site 2) Service provider 3) Web Portal
4) E-Distributor 5) E-purchaser

41) A person selling a used laptop computer to another person by posting an advertisement on an internet site is

- 1) B2C 2) C2B 3)C2C 4) G2B 5)G2C

42) The output of the following Python program is

```
n=10
while n>0:
    print (n)
    if (n==3):
        break
    i -= 1
```

1) 10 2) 10 3) 10 9 8 7 6 5 4 3 4) 10 9 8 7 6 5 4 2 1 5) 10
9
8
7
6
5
4

43) The output of the following Python program is

```
n=10
while n>0:
    if n%3==0:
        n-= 1
        continue
    print( n)
    n-= 1
```

1) 9 6 3 2) 9 3) 9 8 7 6 5 4 3 4) 10 8 7 5 4 2 1 5) 10
6
3
8
7
5
4
2
1

44) The output of the following Python code will be

```
X = []
for a in range(1,9,2):
    X.append ( a)
Print( "X-:",X)
```

- 1) X-:[1,3,5,7,9] 2) X-:[2,4,6,8] 3) [1,3,5,7] 4) X-:[1,3,5 ,7] 5)[1,3,5,7,9]

45) X="Sri Lanka"
 >>print(X[-7:-1])
 >>print(x[0:]
 >>print(x[0:9:2])

output of the above Python program segment respectively

- | | |
|------------------------------|-----------------------------|
| 1) i Lank, Sri Lanka, Si Ln | 2) i Lank, Sri Lanka, SiLna |
| 3) iLanka , Sri Lanka, SiLna | 4) iLank , SriLanka , r ak |
| 5) I Lanka, Sri Lanka, SiLna | |

46) Choose the correct variable from the following Python variables

- | | | | | |
|-------------|----------|---------|--------|-------|
| 1) Stu.name | 2) axb ! | 3) _age | 4) def | 5) if |
|-------------|----------|---------|--------|-------|

47) Consider the following processes involved in e - commerce.

A - Buying a hand bag online.

B - Online purchase of an electronic copy (e-book) of a book related to A-level IT subject .

C- Book a taxi online to take you from home to the hospital.

above processes represents the *pure-click* business model ?

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

48) A challenge/challenges related to Internet of Things (IoT) can be considered as ,

A - Social isolation

B - Security

C - Privacy

D - Unauthorized access

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

49) IoT A system is usually associated with ,which of the following ?

A - sensor

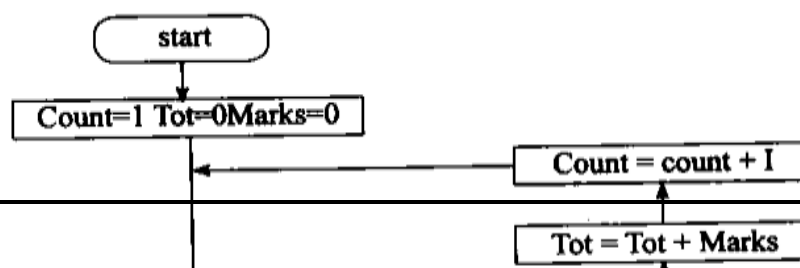
B - Networking

C - Cloud messaging

D - Electronic devices (electronic)

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

50) What are the control structures found in the following flowchart ?



A- Sequence
B- repetition
C- selection

- | | |
|--------------------|-----------|
| 1) A and B only. | 2) C only |
| 3) A and C only | 4) B only |
| 5) A , B, C all of | |

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