

AL/2022/20/S-I

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බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව  
மேல் மாகாணக் கல்வித் திணைக்களம்  
Department of Education - Western Province

අධ්‍යයන පොදු සහතික පත්‍ර ( උසස් පෙළ ) විභාගය 2022 - උපකාරක ප්‍රශ්න පත්‍ර 03  
General Certificate of Education (Adv. Level) Examination 2022- Model Paper 03

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

20

E

I

පැය දෙකයි  
Two Hours

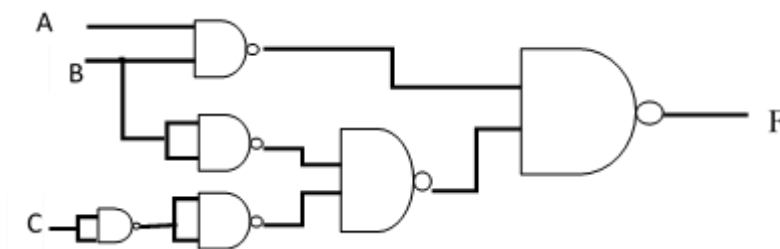
### Instructions

- ❖ Answer all the questions.
- ❖ Write your index number in the given space on the answer sheet.
- ❖ For each question from 1 to 50, choose the correct or most suitable answer from (1), (2), (3), (4), (5) and put a cross (X) on the corresponding number on the answer sheet.
- ❖ Use of calculator and correction fluid is not allowed.

- The most suitable printer type for mobile printing is,  
(1) Dot Matrix Printers (2) Laser Printers (3) Thermal printer  
(4) Line printer (5) Inkjet Printer
- Consider the following statements regarding an operating system.  
A - The operating system is the program that install first on a computer..  
B - The operating system loads on main memory when the computer starts up.  
C - Secondary storage can be used to store the operating system.  
(1) A only (2) B only (3) C only  
(4) A and B only (5) All A,B and C
- Stealing the information of ATM cards and ATM customer's detail through a small device (strip) attached to the ATM machine is a threat that has arisen nowadays. Which of the following is the most appropriate solution for that?  
(1) Suspension of ATM transactions for a short period of time.  
(2) Switching to a chip embedded ATM card instead of magnetic ATM cards.  
(3) Refrain from transacting using ATM cards from the bank branch where the account was opened.  
(4) Getting use over-the-counter transactions for all banking transactions instead of ATM cards.  
(5) Changing password as soon as possible.
- The computer that is the basis of the modern computer and its inventor is,  
(1) The Difference Engine, by Charles Babbage  
(2) Abacus, by the Chinese  
(3) The Napier Machine, by John Napier  
(4) The Loom, by Joseph Jacquard  
(5) The Adding Machine, by Charles Babbage
- Currently, different codes are used to store data and information related to various products, services and peoples. The code used to refer to a website related to a product is.  
(1) Bar code (2) Magnetic ink code (3) pseudo Code  
(4) QR Code (5) Smart Code

6. A component that is not related to the basic model of a computer processor,
- (1) Registers                      (2) Arithmetic and Logic Unit (ALU)      (3) Cache memory  
(4) Control unit                  (5) Random Access Memory (RAM)
7. The value of  $57_8 + 100 + 101_8$  is,
- (1)  $212_8$                       (2)  $324$                       (3)  $11010100_2$       (4)  $11001010_2$       (5)  $134_{16}$
8. Choose the best answer that can be used to describe the functionality of analog computers.
- (1) It is operated by a set of discrete values.  
(2) Operated by a set of frequently varying values over a certain range  
(3) Operated by a set of discrete values and a set of frequently varying values.  
(4) They always show a minimal loss of electrical energy.  
(5) Data is stored as 0's and 1's.
9. The programming language used in the first generation computers, ,
- (1) FORTRAN                      (2) COBOL                      (3) BASIC  
(4) Machine Language                  (5) Python

10.



The more simplified expression for the output F with respect to the above circuit is ,

- (1)  $= (A.B) + (B+C')$                       (2)  $= (A+B)' . (A.C')$                       (3)  $= ((A.B)' . (B+C'))'$   
(4)  $= (A.B) + (B'.C)$                       (5)  $= ((A.B)' . (B'.C'))'$
11. A reference in main memory is called, ,
- (1) Physical address                      (2) Logical address                      (3) Word  
(4) Page address                      (5) Frame address

12.

File Type	Extention
i. Executable	a. swf
ii. Image	b. exe
iii. Video	c. zip
iv. Compress	d. png

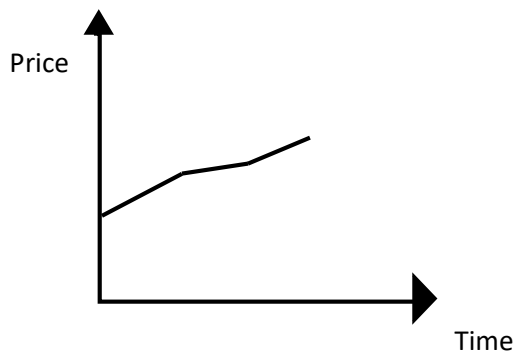
According to the table given above, which of the following correctly shows the file type and its corresponding file extension.

- (1) i-a, ii-c, iii-d, iv-b                      (2) i-b, ii-d, iii-a, iv- c                      (3) i-b, ii-c, iii- a, iv – d  
(4) i- b, ii-a, iii- d, iv-c                      (5) i-b, ii –a, iii- d, iv – c

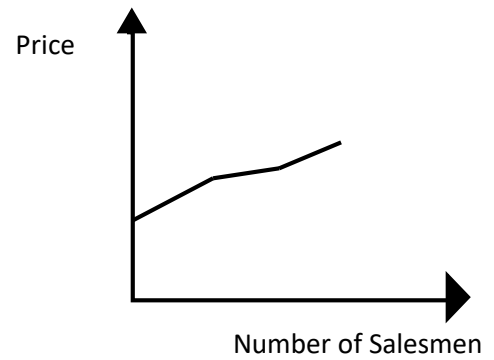
13. Information not included in the Process Control Block (PCB) ,
- (1) Process Identification Number
  - (2) Input and output of the process
  - (3) information of the Input/output status
  - (4) Memory management information
  - (5) Program counter
14. While Amila was printing a multi-page document, suddenly the printer ran out of paper. Amila immediately re-inserts the paper and resumes the printing process. According to the seven-state process transition diagram, which of the following best describes the above scenario?
- (1) The printing process enters the blocked state and then it enters the ready and running states, respectively.
  - (2) The printing process enters the swapped and blocked state and then terminates.
  - (3) The printing process goes into the swapped and waiting states and then into the ready and running states.
  - (4) The print operation terminates and starts again from the created state.
  - (5) The printing process goes into the blocked state and returns to the created state and starts.
15. “A” wants to send the message “WRONG” to “B”. Before sending the message it is converted to “VQNMf”. Which of the following is correct regarding this scenario?
- A – “WRONG” is plain text and “VQNMf” is cipher text.  
 B – “VQNMf” is the result of applying the ASCII code on “WRONG”.  
 C - Encryption key is “-1” and Decryption Key is “+1”.
- (1) A only
  - (2) B and C only
  - (3) A and C only
  - (4) A and B only
  - (5) ALL A,B and C
16. “Rasa Risi” is a shop that sells food and beverages to consumers. They use a Point of Sale (POS) system to facilitate their work. ” rasa risi” is,
- (1) Pure Brick type organization
  - (2) Pure Click type organization.
  - (3) Brick and click type of organization.
  - (4) Click and brick type of organization.
  - (5) A group purchasing organization.
17. Which of the following are the advantages of using e-commerce for the business sector?
- A. Minimizing the use of paper.  
 B. Ability to engage in business activities 24 hours a day.  
 C. Ability to open branches across the country.  
 D. Ability to engage in modern advertising.
- (1) A, B and C only.
  - (2) A,B and D only
  - (3) B,C and D only.
  - (4) A and B only.
  - (5) All A,B,C and D

18. Which of the following is a graph that accurately shows how prices of goods and services change during a reverse auction? ?

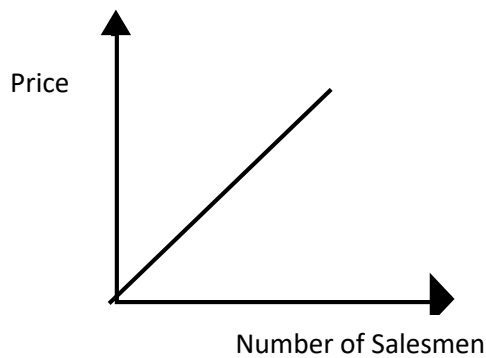
(1)



(2)



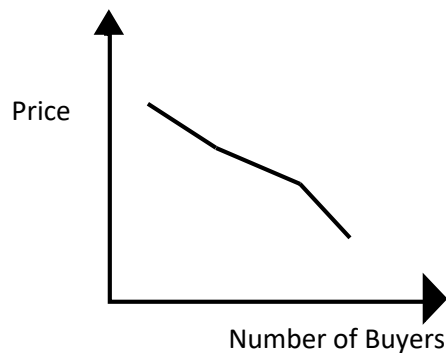
(3)



(4)



(5)



19. "Tesla" is a modern car with predictive, self-driving capability and the ability to automatically adapt to environmental conditions. Among the following, which is/are the Tesla's artificial intelligence features ,

A. Reactivity   B. Adaptation to the external environment   C. Reasoning   D. Cognition

(1) A,B and C only

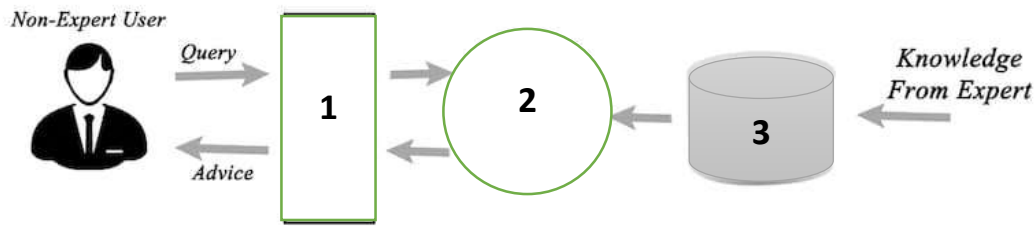
(2) A,B, and D only

(3) B,C, and D only.

(4) C and D only.

(5) A,B,C and D only

20.



A diagram of the use of an expert system is shown in the figure above. The appropriate words for numbers 1,2 and 3 are respectively ,

- (1) User interface, inference engine, knowledge base
- (2) Knowledge base, inference engine, user interface
- (3) Inference engine, knowledge base, user interface
- (4) Logical Inquiry, Conceptual Modeling, Base
- (5) User interface, logic query, Base

21. Which of the following is a disadvantage/disadvantages of artificial intelligence?

- A. Having to work in several fields.
- B. Capturing and preserving human experts.
- C. Possible Legal and Ethical Issues.
- D. Failure to respond promptly.

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

22. Consider the following part of Arduino programming segment .  
Void setup( )

```
{ Pinmode (3,OUTPUT);    }    → ①
{ Pinmode (4,INPUT);     }    → ②
```

The correct explanations of commands 1 and 2 are respectively,

- (1) Sending a signal to the output device connected to the third terminal and sending a signal to the input device connected to the fourth terminal.
- (2) sending a signal to the output device connected to the third terminal and receiving an output through the fourth terminal.
- (3) Connecting 3 output devices and mounting 4 input devices.
- (4) sending a signal to the output device connected to the fourth terminal and sending a signal to the input device connected to the third terminal.
- (5) Introducing devices connected to terminal three and terminal four.

23. Which of the following is not a major component of an Arduino circuit?

- (1) Analog input
- (2) Digital input
- (3) Microcontroller
- (4) Power supply Port
- (5) Arduino board

24. Consider the following Arduino programming block, which is coded to turn on an LED bulb and turn it off again after 500 milliseconds. .

```
Void loop()  
{  
digitalWrite (2,HIGH);  
.....  
digitalWrite (2,LOW);  
}
```

Which of the following is the most appropriate command for the blank?

- (1) delay(500)                      (2) Late(500)                      (3) after (500)  
(4) 500 (after)                      (5) off (after 500)
25. Which of the following is the incorrect statement regarding MAC address? ,
- (1) The first 3 octal values of the MAC address represent the manufacturing company and the other three octal numbers are assigned by the respective company to its own system.  
(2) MAC address and IP address are combined together during data transmission.  
(3) The MAC address is inserted in the PCB by the manufacturer.  
(4) MAC address consists of 48 bits.  
(5) MAC address is used to individually identify devices on a computer network.
26. What is the difference between <http://xyz.com> and <https://abc.com>?
- (1) "S" indicates that the communication between the server and the client computer is fast.  
(2) "S" indicates that the communication between the server and the client computer is not stable.  
(3) "S" denotes that the communication between the server and the client computer is asynchronous.  
(4) "S" denotes that the communication between the server and the client computer is secure.  
(5) "S" represents that communication between server and client computer is very simple.
27. The transmission impairment caused by passing two signals one over another in same transmission medium is called.,
- (1) Attenuation                      (2) Delay distortion                      (3) Thermal noise  
(4) Interference                      (5) Cross talk
28. which of following subnet masks allow 128 host computers to be used for one computer network ,
- A - 255.255.254.0                      B - 255.255.255.0                      C -255.255.255.128  
(1) A only                      (2) B only                      (3) C only  
(4) A and B only                      (5) All A,B and C
29. An organization has 5 devices with fixed IP addresses connected to a computer network whose IP address range is 192.168.1.0/29. After configuring this network, one of the following devices shows that it is not connected to this computer network. That device is,
- (1) device A - 192.168.1.2                      (2) device B - 192.168.1.3  
(3) device C - 192.168.1.5                      (4) device D -192.168.1.6  
(5) device E - 192.168.1.7
30. Computer network devices operate on specific individual layers. Out of followings, which one correctly represents the device and the corresponding network layer?
- (1) Router – Network layer                      (2) Hub – Data link layer  
(3) Router – Data link layer                      (4) Switch – Physical layer  
(5) Repeater – transport layer

31. Note the IP address 192.168.1.100/26. What is the number of bits needed to identify the network and host bits respectively ?
- (1) 6 bits and 2 bits                      (2) 2 bits and 26 bits                      (3) 2 bits and 6 bits  
 (4) 26 bits and 2 bits                      (5) 26 bits and 6 bits
32. Which of the following is true about an analog signal?
- A - represented by a square wave.  
 B - Consists of a continuous value range.  
 C - Uses discrete values to represent information.
- (1) A only                      (2) B only                      (3) C only  
 (4) A and B only                      (5) A and C only
33. Consider the following relation R and their functional dependencies. Here in R relation A,B,C,D,E,F,G are fields of same table and dependencies are identified as below.  
 $R = \{A, B, C, D, E, F, G\}$   
 $A, B \rightarrow G$   
 $A \rightarrow C, D$   
 $B \rightarrow E, F$   
 $E \rightarrow F$   
 Which of the following statements is true about R if the primary key of R is "A and B"?
- (1) The relation R exists in the first normal form and does not exist in the second normal form.  
 (2) The relation R is in the second normal form and not in the first normal form.  
 (3) The relation R exists in the second normal form and not in the third normal form.  
 (4) The relation R exists in the third normal form and not in the second normal form.  
 (5) The relation R is at the third normal form.
34. Which of the following SQL commands can be used for unspecified value search patterns?
- (1) IN                      (2) BETWEEN                      (3) OR                      (4) AND                      (5) LIKE
35. A student studying abroad places an online order for a birthday gift for his friend in Sri Lanka using web-based services. This transaction can best be classified as,
- (1) C 2 B                      (2) B 2 B                      (3) B 2 C                      (4) C 2 C                      (5) C 2 G
36. Consider the following description of the STUDENT table.  
 STUID INT PRIMARY KEY  
 COURSE\_ID VARCHAR(10)  
 START\_DATE DATE  
 END\_DATE  
 Which of the following is the SQL command that can be used to find the student who first joined the course?
- (1) SUM (START\_DATE)                      (2) AVG (START\_DATE)  
 (3) AVG (START\_DATE, END\_DATE)                      (4) MIN (START\_DATE)  
 (5) MAX (START\_DATE)
37. 1        SELECT emp\_name, sal, dept\_id  
 2        FROM employee WHERE sal >  
 3        (SELECT avg(sal)  
 4        FROM employee);

Which of the following is the result of the above SQL statement?

- (1) The first line shows an error..
- (2) The second line shows an error.
- (3) The third line shows an error.
- (4) Showing details of employees who are paid more than the average salary of all employees
- (5) Finding the average wages of all employees.

38. Among the following diagrams, the diagram used to identify the system boundary is,

- (1) Physical connection model      (2) Class diagrams      (3) Flow charts
- (4) Context diagrams      (5) BAM diagrams

39. What will be the output when executes the python code  $(64 \ll 1) \% 5 \& 2$  ?

- (1) 7      (2) 2      (3) 16      (4) 4      (5) 8

40. What will be the output when the following Python code is executed?

```
x=[10,20,30,40,50]
y=0
for i in range(0,len(x)):
    a=x[i]%2
    if a==0:
        y=y+x[i]
print(y)
```

- (1) 80      (2) 43
- (3) 34      (4) 22
- (5) 150

41. What will be the output when the following Python code is executed?

```
X=10
def f(a):
    global X
    a=X+a
    X=30
    return a
print (f(X))
```

- (1) 10      (2) 20
- (3) 30      (4) 40
- (5) An error

42. Which of the following is false about external CSS?

- A. The same style can be used for all web pages.
- B. In all types of CSS usage this has the highest level of priority.
- C. The <a href> tag is used to link web pages that using styles.

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

43. Which of the following is the correct CSS expression for including comments?

- (1) /\*this is a comment\*/      (2) 'this is a comment
- (3) //this is a comment//      (4) //this is comment
- (5) <!-- This is a comment- ->

44. Which of the following is the correct CSS expression for displaying a hyperlink without an underscore??

- (1) a { decoration:no underline}      (2) a { text-decoration:no underline}
- (3) a { underline : none}      (4) a {text-decoration:none}
- (5) a { text – underline : none}



Answer question number 45 and 46 with the following HTML code segment.

<pre> &lt;form action="/action_page.php"&gt; First name:&lt;br&gt; &lt;(1)&gt; name="firstname" value="Donald"&gt;&lt;br&gt; Last name:&lt;br&gt; &lt;(1)&gt; name="lastname" value="Duck"&gt;&lt;br&gt; Gender :&lt;br&gt;    &lt;(2) name="gender" value="male"&gt; Male&lt;br&gt; &lt;(2) name="gender" value="female"&gt; Female&lt;br&gt; &lt;(3) value="Submit"&gt; &lt;input type="reset"&gt; &lt;/form&gt; </pre>	<p>Output:</p> <p>First name:</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Donald</div> <p>Last name:</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Duck</div> <p>Gender :</p> <p><input type="radio"/> Male</p> <p><input type="radio"/> Female</p> <div style="display: inline-block; border: 1px solid black; padding: 2px; margin-right: 5px;">Submit</div> <div style="display: inline-block; border: 1px solid black; padding: 2px;">Reset</div>
---	---

45. The appropriate html tags to fill the blanks 1, 2, and 3 In the above html code snippet respectively,  
 (1) 1- input type ="text", 2- input type ="radio", 3- input type = "submit"  
 (2) 1- input type ="text", 2- input type ="checkbox", 3- input button = "submit"  
 (3) 1- input type ="text", 2- input type ="radio", 3- input type = "Reset"  
 (4) 1- input type ="text", 2- input ="radio", 3- input = "button"  
 (5) 1- input type ="label", 2- input type ="radio", 3- input type = "submit"
46. Which of the following is the correct attribute to limit the number of characters to be entered for first name to 40 in the above code?  
 (1) size = "40" (2) maxlength="40" (3) maximumlength = "40"  
 (4) maxsize ="40" (5) maximum-length = "40"
47. Which of the following is the correct attribute used to increase the spacing between cells in a table?  
 (1) cellpadding (2) Colspan (3) rowspan (4) cellspacing (5) border
48. Which of the following is not an advantage of CSS coding?  
 (1) Using CSS can save time in web application development.  
 (2) CSS increases the download speed of a web application.  
 (3) Ability to be easily updated.  
 (4) Ability to use calculation functions in a web application.  
 (5) Facilitating the use of a web application by various devices.
49. Which of the following are correct PHP variable names?  
 A - \$1Name B- \$\_First\_Name C – First\_Name D - \$\_Name E – 1\_Name  
 (1) A,B, and D only (2) B and D only (3) C and E only  
 (4) C only. (5) B,C, and D only
50. Which of the following correctly represents the output of the following PHP code segment?
- ```

<?php
for ($x = 0; $x <= 5; $x++) {
    echo "number: $x <br>";
}

```

(1) number : 1 number : 2 number : 3 number : 4 number : 5

|     |            |     |            |
|-----|------------|-----|------------|
| (2) | number : 0 | (3) | number : 0 |
|     | number : 1 |     | number : 1 |
|     | number : 2 |     | number : 2 |
|     | number : 3 |     | number : 3 |
|     | number : 4 |     | number : 4 |
|     | number : 5 |     |            |

(4) number : 0 number : 1 number : 2 number : 3 number : 4 number : 5

(5) Syntax error "undefined variable"