

දිවයිනේ සෞඡයිතම ICT ගුරුවරයාගේ 17 වන
වාර්ෂික මහා සම්මන්ත්‍රණය,

ICT

2025 A/L Final SEMINAR



- ✓ සිදු කරනු ලබන විෂය නිර්දේශයට අනුකූලව වන පරිදි අනුමාන ප්‍රශ්න පත්‍රයක් ලබා දේ...
- ✓ ඕනෑම මට්ටමක කිවිත ඔබට අධ්‍යයන ප්‍රතිඵල වලින් අතිවාරය ලකුණු 30ක් දැක්වූ පෙළ ප්‍රශ්න පත්‍රයක් ලබා දේ.

ප්‍රශ්න ක්‍රමය

B.Sc (IT), SCS, RHCSA, CCNA

15th
OCTOBER

8.00AM to 3.00PM

@ Sasip Nugegoda

Fee - Rs. 1500/=



More info :

071 77 88 014

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
 இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2022(2023)
 கல்விப் பொதுத் தராதரப் பத்திர (உயர் தரப் பரீட்சை, 2022(2023)
 General Certificate of Education (Adv. Level) Examination, 2022(2023)

තොරතුරු හා සන්නිවේදන තාක්ෂණය I
 தகவல், தொடர்பாடல் தொழினுட்பவியல் I
 Information & Communication Technology I

20 E I

පැය දෙකයි
 இரண்டு மணித்தியாலம்
 Two hours

Instructions:

- * Answer **all** the questions.
- * Write your **Index Number** in the space provided in the answer sheet.
- * Instructions are also given on the back of the answer sheet. Follow those carefully.
- * In each of the questions 1 to 50, pick one of the alternatives from (1), (2), (3), (4), (5) which is **correct or most appropriate** and mark your response on the answer sheet with a cross (X) in accordance with the instructions given on the back of the answer sheet.
- * Use of calculators is **not allowed**.

1. Which of the following statements is/are correct?

- A – Firmware is a computer program that is usually embedded in the volatile memory of a computer.
 B – A printer driver is an example for an application software.
 C – Linux is an example for a system software.

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

2. Which of the following require(s) *real-time* processing?

- A – generating monthly electricity bills of customers
 B – updating the bank account balance of a customer when she/he withdraws money from an ATM
 C – updating the stock balance in a store upon successful completion of each transaction

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

3. Which of the following lists a computer memory hierarchy in the **descending order** of access speed?

- (1) hard disk, registers, L2 cache, L1 cache, main memory
 (2) main memory, L1 cache, registers, L2 cache, hard disk
 (3) registers, main memory, hard disk, L1 cache, L2 cache
 (4) registers, L1 cache, L2 cache, main memory, hard disk
 (5) L1 cache, L2 cache, registers, main memory, hard disk

4. Which of the following gives the correct results of bit-wise AND and bit-wise OR operations between the two binary numbers 01010100_2 and 11101001_2 respectively?

- (1) 01000000_2 , 11111101_2
 (2) 00000010_2 , 10111001_2
 (3) 10111101_2 , 11001010_2
 (4) 11000000_2 , 00101100_2
 (5) 11111101_2 , 01010011_2

5. What is the correct binary equivalent of decimal 12.75_{10} ?

- (1) 1011.01_2 (2) 1011.11_2 (3) 1100.00_2 (4) 1100.11_2 (5) 1100.01_2

6. What is the correct 2's complement binary representation of decimal -41_{10} using 8-bits?

- (1) 00101001 (2) 01010110 (3) 10101001 (4) 11010110 (5) 11010111

7. The address of an instruction was shown as **10f9** in hexadecimal. What is that address in decimal?
 (1) 25 (2) 1249 (3) 4345 (4) 10159 (5) 16249

8. A particular command can be used to output a text file in its binary format.
 Assume a file contains the following text:

0 Waste!

Referring the **Important notes** (i) and (ii) given below, select the correct output that will result when the said command is run on that file.

- (1) 00110000 00100000 01010111 01100001 01110011 01110100 01100101 00001010
- (2) 00110000 01010111 01100001 01110011 01110100 01100101 00100001 00001010
- (3) 00110000 00100000 01010111 01100001 01110011 01110100 01100101 00100001 00001010
- (4) 00110000 00100000 01110111 01100001 01110011 01110100 01100101 00100001 00001010
- (5) 00110000 00100000 01010111 01100001 01110011 01110100 01100101 00100000 00001010

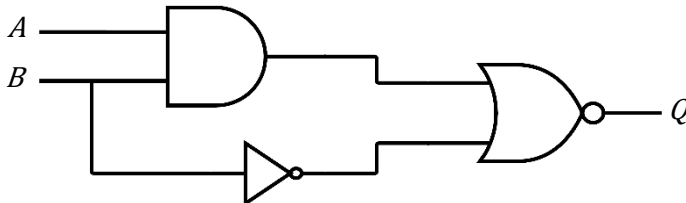
Important notes:

- (i) The file ends with a LINE FEED character.
- (ii) Some selected rows from the 7-bit ASCII table are given below:

Character	Binary
(LINE FEED)	0001010
(SPACE)	0100000
!	0100001
0	0110000
W	1010111

Character	Binary
a	1100001
e	1100101
s	1110011
t	1110100
w	1110111

9. Consider the following logic circuit:



When $B=1$, what would **definitely** be the output at Q?

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

10. Simplified Boolean expressions help to obtain simpler circuits.

Which of the following is a simplified form of $X + \bar{X}Y$?

- (1) X (2) Y (3) XY (4) $\bar{X}Y$ (5) $X + Y$

11. Consider the following truth table:

A	B	C	Z
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

What is the correct Karnaugh map for the above truth table?

(1)

A \ BC	00	01	10	11
0	0	0	1	1
1	1	1	0	0

(2)

A \ BC	00	01	11	10
0	0	0	1	1
1	1	1	0	0

(3)

A \ BC	00	10	01	11
0	0	1	0	1
1	1	0	1	0

(4)

A \ BC	00	10	11	01
0	0	1	1	0
1	1	0	0	1

(5)

A \ BC	00	11	10	01
0	0	1	1	0
1	1	0	0	1

12. A program in execution in a computer is called a process. Such a process transits between several states during its lifetime. Which of the following correctly represents a possible state transition sequence of a process?

- (1) New \rightarrow Ready \rightarrow Running \rightarrow Waiting \rightarrow Ready \rightarrow Running \rightarrow Terminated
- (2) New \rightarrow Ready \rightarrow Waiting \rightarrow Running \rightarrow Waiting \rightarrow Running \rightarrow Terminated
- (3) New \rightarrow Running \rightarrow Ready \rightarrow Waiting \rightarrow Running \rightarrow Ready \rightarrow Terminated
- (4) New \rightarrow Running \rightarrow Waiting \rightarrow Ready \rightarrow Waiting \rightarrow Running \rightarrow Terminated
- (5) New \rightarrow Waiting \rightarrow Running \rightarrow Ready \rightarrow Running \rightarrow Ready \rightarrow Terminated

13. Which of the following is **not** a task of a computer operating system?

- (1) selecting a memory *frame* for a page of a process
- (2) maintaining a list of free memory *frames*
- (3) maintaining a *page table* for each process
- (4) monitoring the usage of binary files on a hard disk
- (5) swapping processes between main memory and hard disk

24. Consider the information system types in **List A** and the descriptive examples in **List B**. Identify the most suitable matching between the items in lists **A** and **B**.

List A
A1 - Decision Support System (DSS)
A2 - Content Management System (CMS)
A3 - Transaction Processing System (TPS)

List B
B1 - a system that allows to update, create, and manage the details in a news website
B2 - a system that handles electronic fund transfers
B3 - a system that combines data and analytical tools for sales forecasting based on historical data

- (1) A1 – B1, A2 – B2, A3 – B3
- (2) A1 – B2, A2 – B1, A3 – B3
- (3) A1 – B2, A2 – B3, A3 – B1
- (4) A1 – B3, A2 – B1, A3 – B2
- (5) A1 – B3, A2 – B2, A3 – B1

25. Which of the following statements is/are correct regarding System Development Life Cycle (SDLC) models?

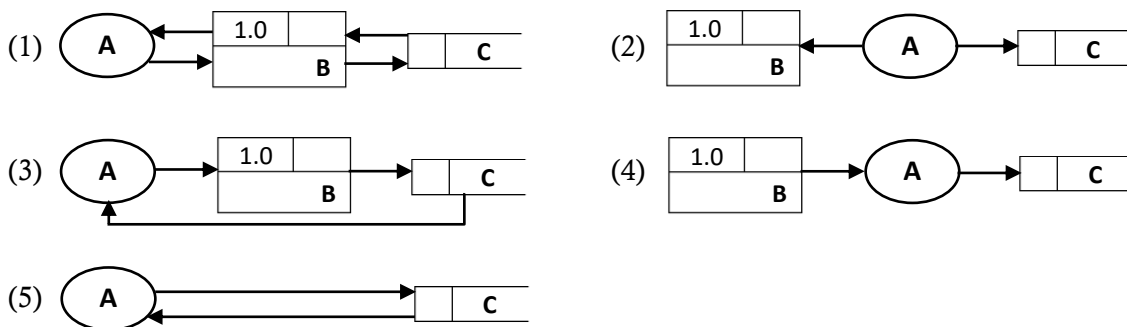
- A – In the *agile* model, small portions of systematically developed working software are delivered to the client frequently.
- B – Late changes in the requirements can be easily accommodated in the *waterfall* model.
- C – *Prototyping* model can be practiced without client interactions.

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

26. *Non-functional requirements* specify quality attributes of a system. Which of the following is an example for a *non-functional requirement*?

- (1) the email system should allow users to attach files
- (2) each page of the website must load within 4 seconds
- (3) administrator of the E-commerce website should be able to view a list of customers
- (4) a user of the online banking system should be able to view the last transactions
- (5) the ATM machine should allow users to print a receipt

27. Which of the following Data Flow Diagrams (DFDs) is correct with respect to the rules of data flow modelling? (Note: A – an external entity, B – a process, C – a data store)



28. Which of the following statements is correct regarding *software testing*?

- (1) Integration testing is usually carried out before unit testing.
- (2) Black-box testing techniques are usually used in acceptance testing.
- (3) White box testing examines the behaviour of a software based only on the inputs to a system.
- (4) Unit testing examines the entire system’s functionality as a whole.
- (5) System testing is usually carried out after the user acceptance testing.

31. What will be the output after executing the following SQL statement?

```
SELECT Customer.Fname, Customer.Lname, Order.OrderId
FROM Customer INNER JOIN Order ON Customer.CusId = Order.CusId
WHERE Customer.Location="Galle";
```

(1)

Fname	Lname	OrderId
Kalum	Gamage	A001
Kalum	Gamage	A003
Shiromi	Silva	A002

(2)

Fname	Lname	OrderId
Kalum	Gamage	A004
Kalum	Perea	A001
Kalum	Gamage	A003
Shiromi	Silva	A002

(3)

Fname	Lname	OrderId
Kalum	Gamage	A001
Kalum	Perera	A003
Shiromi	Silva	A002

(4)

Lname	Fname	OrderId
Gamage	Kalum	A001
Gamage	Kalum	A003
Silva	Shiromi	A002

(5)

Fname	Lname	OrderId
Kalum	Gamage	A001
Shiromi	Silva	A002

32. Which of the following is correct regarding the **Order** relation?

- (1) CusId attribute uniquely identifies each tuple in the relation.
- (2) The relation is in First Normal Form (1NF).
- (3) The relation is in Second Normal Form (2NF).
- (4) Orders of each customer are handled by a unique salesperson.
- (5) The relation consists of a composite primary key.

33. Which of the following statements is/are correct regarding the *normalization* concept?

A – In first normal form, atomic attributes are **removed** from a relation.

B – In second normal form, partial dependency of attributes on the primary key are **removed**.

C – In third normal form, transitive dependency of attributes are **removed**.

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

34. Which of the following statements is/are correct regarding *Entity Relationship (ER) modelling*?

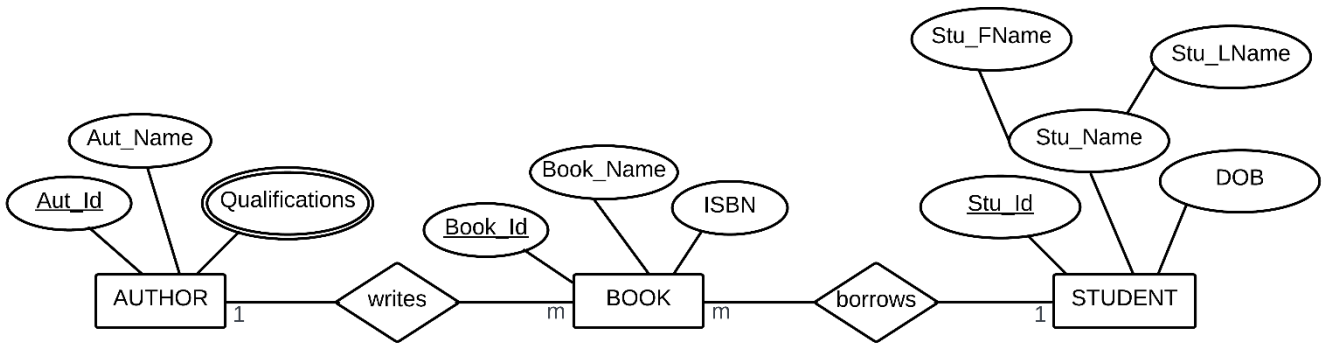
A – A weak entity is dependent on another entity.

B – A derived attribute is represented as an attribute in a relation.

C – An entity can contain a multi-value attribute and a composite attribute at the same time.

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

35. The following ER diagram represents a scenario of students borrowing books from a library. Which of the following gives the most suitable relation list for the given ER diagram?

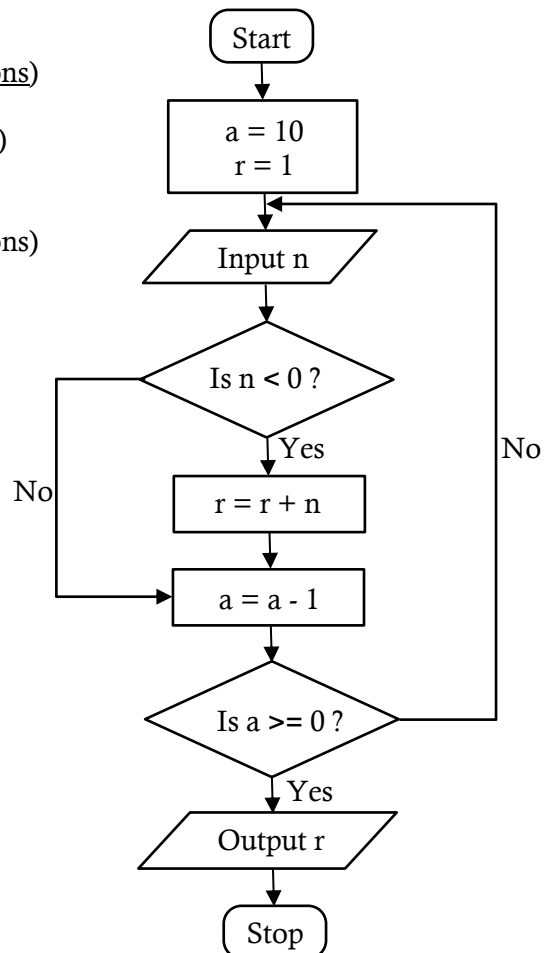


- (1) BOOK (Book Id, Book Name, ISBN, Stu_Id, Aut_Id)
STUDENT (Stu Id, Stu FName, Stu LName, DOB)
AUTHOR (Aut Id, Aut Name)
AUTHOR_QUALIFICATION (Aut Id, Qualifications)
- (2) BOOK (Book Id, Book Name, ISBN)
STUDENT (Stu Id, Stu FName, Stu LName, DOB)
AUTHOR (Aut Id, Aut Name)
AUTHOR_QUALIFICATION (Aut Id, Qualifications)
- (3) BOOK (Book Id, Book Name, ISBN, Stu_Id, Aut_Id)
STUDENT (Stu Id, Stu FName, Stu LName, DOB)
AUTHOR (Aut Id, Aut Name, Qualifications)
- (4) BOOK (Book Id, Book Name, ISBN, Stu_Id, Aut_Id)
STUDENT (Stu Id, Stu Name, DOB)
AUTHOR (Aut Id, Aut Name)
AUTHOR_QUALIFICATION (Aut Id, Qualifications)
- (5) BOOK (Book Id, Book Name, ISBN, Stu_Id, Aut_Id)
STUDENT (Stu Id, Stu Name, DOB)
AUTHOR (Aut Id, Aut Name)
AUTHOR_QUALIFICATION (Aut Id, Qualifications)
BORROW (Aut Id, Book Id)
WRITE (Aut Id, Book Id)

36. Which of the following statements is/are correct about the algorithm expressed by the given flowchart?

- A – An input is taken from the user only once.
- B – The output of the algorithm is always 9.
- C – The algorithm outputs the summation of all the numbers entered.

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



37. What would be the output of the following Python code if the input was 25?

```
x = int(input())
x = (x % (x - 21)) **3
print (x)
```

- (1) 0 (2) 1 (3) 3 (4) 12 (5) 25

38. What would be the output of the following Python code?

```
def fun(para1, para2):
    x=foo(para2, para1)
    return x

def foo(para3, para4):
    return para3 - para4

result=fun(2, 4)
print("Result is " + str(result))
```

- (1) Result is 0 (2) Result is 2 (3) Result is -2
(4) Result is (2, 4) (5) Result is +2

39. What would be the output of the following Python code?

```
def foo(name, age=18, address="Kandy"):
    print (name, address, age)

foo("Nimal", 25, "Colombo")
```

- (1) Nimal Colombo 25 (2) Nimal, Colombo, 25
(3) Nimal, Kandy, 18 (4) Nimal Kandy 18
(5) Nimal 18 Kandy

40. What would be the output of the following Python code?

```
numbers=[10, 20, 30, 40, 50]
numbers.pop(1)
numbers.append(60)
numbers.pop(2)
print(numbers)
```

- (1) [10, 50, 60] (2) [10, 20, 40, 60] (3) [10, 30, 50, 60]
(4) [20, 30, 40, 50] (5) [20, 30, 50, 60]

41. What would be the output of the following Python code?

```
val = 9
for i in range(5):
    for j in range(2, 3, 1):
        val += 1
        if (val % 2) == 0:
            continue
        val += 2
    else:
        val += 2

print(val)
```

- (1) 18 (2) 24 (3) 29 (4) 38 (5) 39

42. Which of the following is/are correct regarding Python functions?

- A – A Python function can return a data structure that contains multiple values.
 B – A Python function can be used without passing any parameters to it.
 C – Parameters can be passed to a python function by value or by reference.

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

43. Which of the following HTML tags can be used to change the appearance of a word in a text?

- (1) <i>, , ,
 (2) , <i>, , <h1>
 (3) , , <sup>, (4) <i>, <u>,
, <sup>
 (5) <u>, <i>, ,

44. What would be the output of the following HTML code segment?

```
<dl>
  <dt> Vegetable </dt>
  <dd> Potato </dd>
  <dt> Fruit </dt>
  <dd> Orange </dd>
</dl>
```

- (1) • Vegetable
 • Potato
 • Fruit
 • Orange
- (2) Vegetable
 Potato
 Fruit
 Orange
- (3) • Vegetable
 Potato
 • Fruit
 Orange
- (4) 1. Vegetable
 Potato
 2. Fruit
 Orange
- (5) • Vegetable
 – Potato
 • Fruit
 – Orange

45. Which of the following statements is/are correct regarding HTML and CSS?

- A – CSS can be used to describe how HTML elements are to be displayed on screen.
 B – External CSS can be used to define the style for many HTML pages.
 C – Inline CSS can be used to apply a style to a single HTML element.

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

46. Which of the following HTML code line can be used to create a hyperlink to the website of the National Institute of Education? (The URL of the website is http://nie.lk)

- (1) National Institute of Education
 (2) National Institute of Education
 (3) National Institute of Education
 (4) <a href = "http://nie.lk"National Institute of Education>
 (5) <a src= http://nie.lkNational Institute of Education>

47. Which of the following could be used to create an array in PHP?

- A – \$city[] = array("Colombo");
 B – city[] = "Colombo";
 C – \$city = array("Colombo");

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

48. Given below is a partially completed PHP script used to connect to a database named **Employees** using MySQLi (procedural method). Which option is most suitable to fill in the blank spaces **(A)**, **(B)** and **(C)** respectively?

```
<?php
    $servername = "127.0.0.1";
    $username = "username";
    $password = "password";
    $conn = mysqli_connect($servername, $username, $password);
    if (!$conn) {
        die("Connection failed: " . mysqli_connect_error());
    }
    $sql = "CREATE DATABASE _____(A)";
    if (mysqli_query(_____(B), _____(C)) {
        echo "Database created successfully";
    } else {
        echo "Error creating database: " . mysqli_error($conn);
    }
    mysqli_close($conn)
?>
```

- (1) \$sql, \$conn, \$Employees (2) \$conn, \$sql, Employees
 (3) \$Employees, \$conn, \$sql (4) Employees, \$conn, \$sql
 (5) Employees, \$sql, \$conn

49. Which of the following statements is/are correct?

- A – Quantum computing could be an alternative to overcome the limitations of the existing microprocessors.
 B – Natural phenomena such as the behaviour of ant colonies could be used to develop new computing models to solve complex problems.
 C – An inference engine of an expert system utilizes the facts in a knowledge base to support decision making.

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

50. Which of the following statements is/are correct?

- A – E-Commerce encourages to minimize physical interactions between buyers and sellers.
 B – The main purpose of sending a One Time Password (OTP) to a credit card holder's mobile phone during an online payment is to identify the current location of the card owner.
 C – Bitcoin is a leading virtual currency.

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

* * *