

නව නිර්දේශය / புதிய பாடத்திட்டம் / New Syllabus

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

NEW

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020
 கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020
 General Certificate of Education (Adv. Level) Examination, 2020

කොරකුරු හා සන්නිවේදන තාක්ෂණය II
 தகவல், தொடர்பாடல் தொழினுட்பவியல் II
 Information & Communication Technology II

20 E II

පැය තුනයි
 மூன்று மணித்தியாலம்
 Three hours

අමතර කියවීම් කාලය - මිනිත්තු 10 යි
 மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
 Additional Reading Time - 10 minutes

Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Index No. :

Important:

- * This question paper consists of 13 pages.
- * This question paper comprises of two parts, Part A and Part B. The time allotted for both parts is three hours.
- * Use of calculators is not allowed.

PART A — Structured Essay:
(pages 2 - 7)

* Answer all the questions on this paper itself. Write your answers in the space provided for each question. Note that the space provided is sufficient for your answers and that extensive answers are not expected.

PART B — Essay:
(pages 8 - 13)

- * This part contains six questions, of which, four are to be answered. Use the papers supplied for this purpose.
- * At the end of the time allotted for this paper, tie the two parts together so that Part A is on top of Part B before handing them over to the Supervisor.
- * You are permitted to remove only Part B of the question paper from the Examination Hall.

For Examiners' Use Only

For the Second Paper		
Part	Question No.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
	10	
Total		

Final Marks

In numbers	
In words	

Code Number

Marking Examiner 1	
Marking Examiner 2	
Marks checked by:	
Supervised by:	

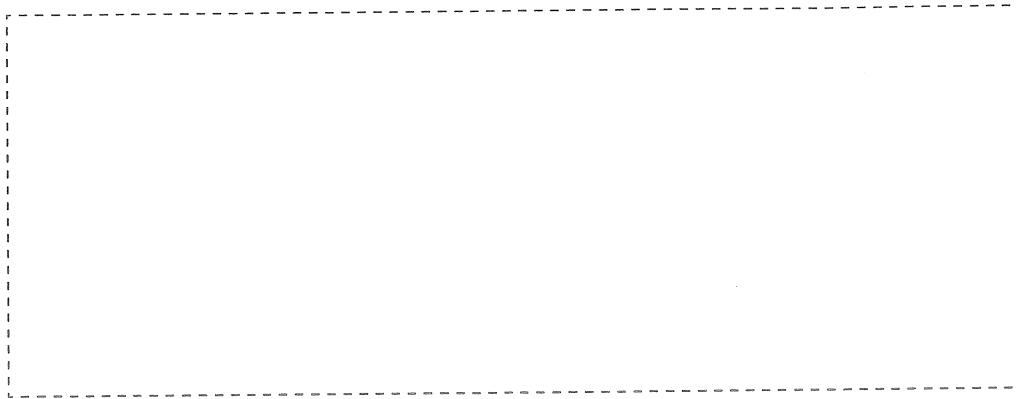
Part A – Structured Essay
Answer all four questions on this paper itself.

Do not write in this column

1. (a) Draw the expected output of the following code segment when rendered by a web browser.

```
<html>
<body>
<table border=1>
  <tr><th>No</th><th>Type</th><th>City</th></tr>
  <tr><td>1</td><td rowspan=2>High</td><td>Galle</td></tr>
  <tr><td>2</td><td>Jaffna</td></tr>
</table>
</body>
</html>
```

Note : Please consider the edges of the following dotted line box as the display area of web browser.



(b) Consider the following html code in which the lines are numbered to answer the questions in this part.

1.	<html>
2.	<head>
3.	<style type="text/css">
4.	h1,h2{color:blue;}
5.	</style>
6.	</head>
7.	<body>
8.	<h1 style="color:green;">Title One</h1>
9.	<h2>Title Two</h2>
10.	</body>
11.	</html>

(i) What are the colours of the text in line numbers 8 and 9 when the above code is rendered by the browser?

Line number	Text	Colour
8	Title One
9	Title Two

(ii) Write one advantage of defining styles as in line numbers 3, 4 and 5 over that of line number 8.

.....

.....

(iii) Write only the content of an external style sheet to include the following:

- a) the style defined in line number 8 and
- b) a CSS Id named 'appear' to define the style of the font as 'Arial'

.....

(c) The following four PHP code blocks which are labeled as A, B, C and D are taken from a code intended to retrieve data from a database to display on the screen. However, the code blocks are not in correct order.

Label	Code Block
A	<code>\$sql = "SELECT itemcode, name FROM Product"; \$result = \$conn->query(\$sql);</code>
B	<code>if (\$conn->connect_error) { die("Connection failed: " . \$conn->connect_error); }</code>
C	<code>if (\$result->num_rows > 0) { while(\$row = \$result->fetch_assoc()) { echo "Code:". \$row["itemcode"]."/Item:". \$row["name"]. "
"; } } else { echo "0 results"; }</code>
D	<code>\$conn = new mysqli("localhost", "admin", "C#a8t", "StoreDB");</code>

(i) Write the labels of the four code blocks in the correct order inside the four blanks of the following PHP script.

```
<?php
.....
.....
.....
.....
$conn->close();
?>
```

(ii) If the above code blocks are in the correct order, what is the expected output if the 'Product' table has only the following values?

Product

itemcode	name
P1	Pen
P3	Book

.....

Do not write in this column



Do not write in this column

2. (a) In an emergency health problem where people have to stay at home for a long period, the shops within the area remain closed for regular business activities. Under such circumstances the shops within a village or nearby town can help their community by practicing their business through e-commerce.

Considering the above scenario, fill the blanks in the following statements with suitable phrases from the given list of phrases.

- (i) In this emergency situation, shops follow the business model.
- (ii) Shops must use to allow customers to purchase more than one type of product in a single transaction.
- (iii) The e-commerce site for each shop can implement to display their products to the customers.
- (iv) For business owners who cannot use payment gateway through online fund receipts and for the customers who do not have any online mode of payments can still be supported through
- (v) is one of the best ways to reduce the overhead costs of delivery within a local area such as a lane, street or housing scheme.
- (vi) The local shop owners can establish to serve their community better by enabling access to each shop's services through a common portal.

List of phrases: {advertising banners, an online marketplace, a shopping cart, a web product catalogue, cash-on-delivery, credit-cards, discount pricing, group purchasing, payment gateways, click and brick, pure click, subscription as a revenue model}

(b) Consider the following Python program:

```
L1 = [int(x) for x in input().split()]
L2 = [int(x) for x in input().split()]
L3=[]
for i in L1:
    for j in L2:
        if (i==j) and (i not in L3):
            L3.append(i)
L3.sort()
print(L3)
```

(i) Write the output of the program if the first input (that creates L1) is "7 4 1 2 2 8" and the second input (that creates L2) is "8 2 4 5 6"?

.....

(ii) What is the purpose of this program?

.....



3. (a) (i) State two service models in cloud computing.

(1)

(2)

(ii) What are the three steps in the FETCH-EXECUTION cycle of a computer?

(1)

(2)

(3)

(b) Match each of the given sentences (i) – (v) relating to computer networks with the most suitable item from the list below.

List = {ADSL Connection, DSL Connection, FTP, HTTP, Internet Layer, Malware, Phishing, TCP, Transport Layer, UDP}

(i) A simple and query based communication model with a minimum use of protocol mechanisms applied in transport layer

(ii) A protocol for data communication in the World Wide Web

(iii) The layer that defines the addressing and routing structures used for the TCP/IP protocol suite in the TCP/IP model

(iv) The process of attempting to get sensitive information from someone by pretending as a trustworthy person

(v) The connection that allows the data transmission at much greater speed and capacity than the narrowband services

Note: Write only the matching item against the phrase number.

(i)

(ii)

(iii)

(iv)

(v)

Do not write in this column



Do not write in this column

4. (a) An operating system uses *Process Control Blocks (PCBs)* to maintain important information about each process.

(i) Read the following scenario and answer the given question:

Piyal starts a spreadsheet program on a single processor computer to use the budget.xls file that he saved the day before. He also is running a web browser that he uses to check his email.

At a particular time, the operating system changes the process state field in the PCB of the spreadsheet process from "Running" to "Blocked". Give one likely reason for that transition.

.....

(ii) When the state of a process changes (e.g., "Running" → "Ready"), the values of the machine registers are stored in the PCB of that process. Why is it important to store them?

.....

(b) The block size of a disk is 4 KB. A portion of its **File Allocation Table (FAT)** starting from block 300 at a particular time, is shown below. It gives the blocks of *maximum.py* file as well:

FAT

300	303
301	300
302	
303	304
304	-1

Note: The last block of a file is indicated by -1.

(i) Write down the value of an important number that will be stored in the directory entry for *maximum.py* file that will help an operating system locate the blocks in that file.

.....

(ii) Assume that additional improvements are made to the *maximum.py* file that results in its size becoming 20 KB. What changes are needed in the FAT for this purpose?

.....

(c) Assume that we have a computer that can use 16-bit virtual addresses from 0 up to 64 K.

Assume further that this computer has only 32 KB of physical memory and that the page size in this computer is 4 KB.

(i) The above 16-bit virtual address is made up of the *bits of the page number* followed by *offset bits*. How many bits in the address are required to store a page number in this computer?

.....

(ii) User runs a particular program having a size of 32KB on this computer. A few selected fields of the *page table* of that process at a particular time are shown in the figure below.

Do not write in this column

Page number	Frame number	Present/absent
0	101	1
1	000	0
2	000	0
3	110	1
4	011	1
5	000	0
6	111	1
7	000	0

Notes:

- The frame number is indicated in *binary*.
- The virtual addresses on page 0 are from 0 to 4095 and on page 1 are from 4096 to 8191 and so on.
- The **Present/absent** bit indicates the validity of the entry. If this bit is 1, the entry is valid and can be used. If it is 0, then the relevant virtual page is not in physical memory.

Assume that in the above process the virtual address 0011 0000 0000 0010 is wanted.

The above virtual address is mapped to the physical address 110 0000 0000 0010. Explain it.

.....

.....

.....

.....

.....

.....

.....

.....

(iii) Assume that there was a request for the virtual address 0001 0000 0000 0000. Due to the set of tasks that the operating system initiated to fulfil that request, the present/absent bit of the page number 6 in the above page table changed from 1 to 0. What is the likely 15-bit physical address that the virtual address 0001 0000 0000 0000 will be mapped to?

.....

* *

