

අධ්‍යාපන රෝග සහතික පෙනු (ලෙස පෙනී) විභාගය, 2014 අගෝස්තු කළම්පිය පොතුන් තාරාතුප ප්‍රතිච්‍රි (ශ්‍රේෂ්ඨ තාරුප ප්‍රතිච්‍රි) මෙයි 2014 ඉකළා උග්‍ර ප්‍රාග්ධන ප්‍රාග්ධන ප්‍රාග්ධන ප්‍රාග්ධන General Certificate of Education (Adv. Level) Examination, August 2014

தொற்சுருட் கூ சுந்திலீடின் தொக்ஷனய தகவல், தொடர்பாடல் தொழினுட்பவியல் **Information & Communication Technology**

20 E I

பகுதி எடுக்க
இரண்டு மணித்தியாலம்
Two hours

Instructions:

- * Answer **all** the questions.
 - * Write your **Index Number** in the space provided in the answer sheet.
 - * Instructions are 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.

9. The Sri Lankan cricket team won the T-20 World Cup-2014 tournament. The Sri Lankan cricket fans had the highest value of this information when
 (1) the final match started.
 (2) Thisara Perera scored the winning run.
 (3) the captain Lasith Malinga received the trophy.
 (4) they saw the news on the newspapers.
 (5) they saw the cricket team at the Katunayaka Airport.

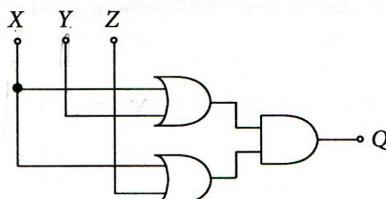
10. $4A6_{16} + 99_{10} =$

- (1) 615_{16} (2) 615_{10} (3) 509_{10} (4) 509_{16} (5) 659_{16}

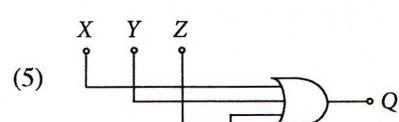
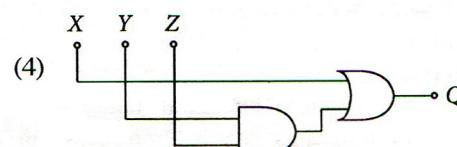
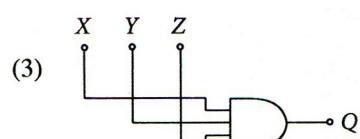
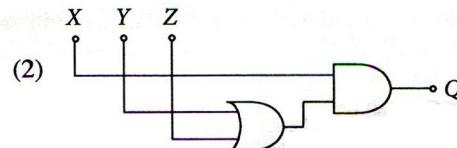
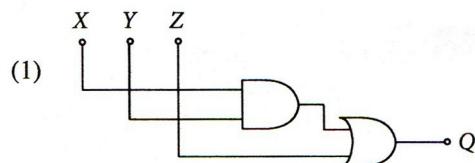
11. Representations of 5_{10} and -9_{10} in 8-bit Two's complement forms are

- (1) 00000101 and 11110111 respectively. (2) 11111011 and 11110111 respectively.
 (3) 00000101 and 10001001 respectively. (4) 00000101 and 11110110 respectively.
 (5) 11111011 and 11110110 respectively.

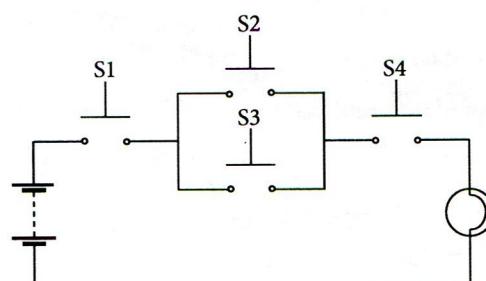
12. Consider the following logic circuit:



Which of the following circuit diagrams represents a simplified version of the above circuit?



13. Consider the following circuit with four push button switches namely: S1, S2, S3, and S4. These four switches can either be in pushed or released states which are represented by 1 and 0 respectively. (Note: In the circuit given below, all the switches are in released state having value 0.)



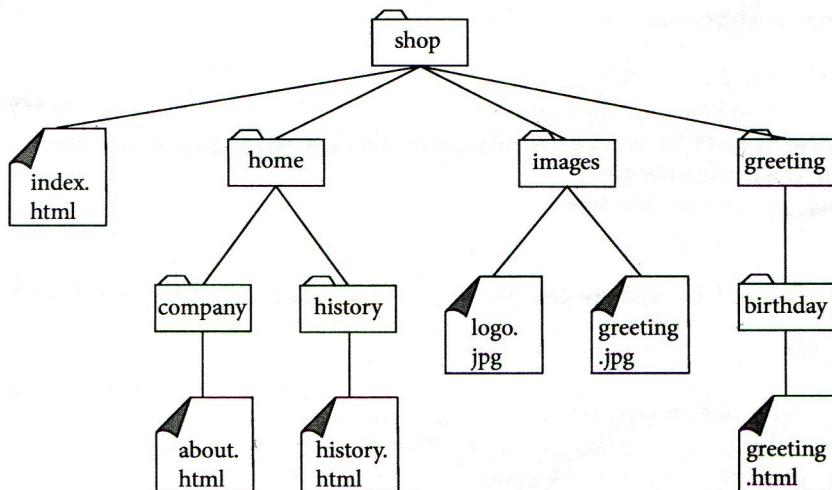
Which of the following Boolean expressions represents the function of the bulb, if the on state of the bulb is represented by the value 1?

- (1) $S1 + (S2 \cdot S3) + S4$ (2) $(S1 + S2) \cdot (S3 + S4)$ (3) $(S1 \cdot S2) + (S3 \cdot S4)$
 (4) $S1 \cdot S4 \cdot (S2 + S3)$ (5) $S2 + (S1 \cdot S4) + S3$

14. Which of the following has the fastest access speed?
 (1) Extended Memory (2) Register Memory (3) Flash Memory
 (4) Cache Memory (5) Virtual Memory
15. Which of the following is **not** a main function of an operating system?
 (1) Memory Management (2) Process Scheduling (3) File Handling
 (4) Virus Detection (5) User Interfacing
16. In an operating system, moving a process from the main memory to the secondary storage in order to bring in another process to the main memory is called
 (1) Demand Paging. (2) Context Switching. (3) Swapping.
 (4) Interrupting. (5) Scheduling.
17. The following element is a markup for including an image to an HTML document. The name of the source file of the image used is "arrow.jpg" which is in the same folder as the HTML document.

 Which of the following is the most suitable to fill the blank in the above element?
 (1) alt (2) src (3) scr (4) href (5) link

18. Consider the folder structure given below:



- Which of the followings is the correct markup to include in the index.html to link greeting.html document?
 (1) Greeting
 (2) Greeting
 (3) Greeting
 (4) Greeting
 (5) Greeting
19. Which of the followings is a client-side scripting language that is commonly used to add interactivity to web pages?
 (1) CSS (2) PHP (3) XML (4) HTML 2 (5) JavaScript
20. Consider the following HTML element:
 <input type = text size = 10/>
 The attribute 'size' on the above element refers to the
 (1) length of the text box in pixels.
 (2) maximum number of characters displayed in the text box.
 (3) maximum number of characters that can be typed into the text box.
 (4) font size of the text box.
 (5) number of lines displayed in the text box.

- 21 Facebook is a popular social network connecting millions of people with new members joining daily Which of the following statements is correct?
- Facebook plays a very important role in building and maintaining your family relationships.
 - Facebook is the only social network available today.
 - Privacy settings of Facebook assure the privacy of its users completely.
 - Publishing private information in Facebook has resulted in unfortunate incidents.
 - Real identity of a person is always guaranteed in Facebook.
22. Which of the following statements is true?
- Computer based learning is a teacher oriented learning technique.
 - Skype is a famous video conferencing technique.
 - Virtual Private Network (VPN) provides a medium for telecommuting.
 - Conducting offline examinations can be considered as computer aided assessments.
 - Microsoft Power Point is Free and Open Source Software (FOSS) for computer based presentations.
23. Computers attached to a LAN use the default gateway connected to the same network
- to translate the domain names to IP addresses.
 - to forward IP packets when they do not know any specific route to the destination.
 - as the firewall for the network.
 - to send all the data packets to other computers in the same LAN
 - to assign IP address to a computer on the LAN
24. Which of the following statements is true?
- www.ebay.com is an example for C2C.
 - When the government renders its services to the public through www then it is called B2C.
 - www.wikipedia.com is an example for C2B.
 - www.amazon.com is an example for B2E.
 - Facebook groups are examples for E2C.
25. The command that can be used to measure the round trip propagation delay between two computers on the Internet is
- ping.
 - ifconfig.
 - ssh.
 - ftp.
 - telnet.
26. In the OSI seven layer reference model, IP protocol maps to the _____ layer.
Which of the following is most appropriate to fill the blank in the above statement?
- application
 - session
 - transport
 - network
 - physical
27. The function of the DHCP server in an IP network is to
- translate domain names to IP addresses.
 - cache the web pages.
 - dynamically allocate IP addresses.
 - filter IP packets.
 - provide security
28. Which of the following is a valid subnet mask?
- 255.255.255.192
 - 255.0.255.0
 - 256.255.255.64
 - 255.256.255.96
 - 0.0.0.255
29. The ping command indicates that there is a 5% packet loss between the computers X and Y. There is an FTP server running on Y. A file is downloaded to X from Y using FTP protocol. Which of the following is the most appropriate statement regarding this file download?
- The downloaded file has exactly 5% of the data missing.
 - The downloaded file has more than 5% of the data missing.
 - The downloaded file has 5% of data in a different order than the original file.
 - The downloaded file has the data in exactly the same order as the original file.
 - FTP protocol cannot run on a network connection with errors.
30. Which of the following relations is in the 3rd normal form?
- student(studentIndexNo, name, parentName)
 - sport(sportId, sportName, teacherName, teacherId)
 - teacher(teacherId, teacherName, telephoneNumber, subjectName, subjectId)
 - book(ISBN, title)
 - patient(patientId, patientName, ward, wardId)

- Consider the following three tables in a relational database to answer questions 31 to 34. Assume that a subject has only one paper for an examination.

subject

subjectId	title
SUB001	Information and Technology
SUB002	Chemistry
SUB003	Physics

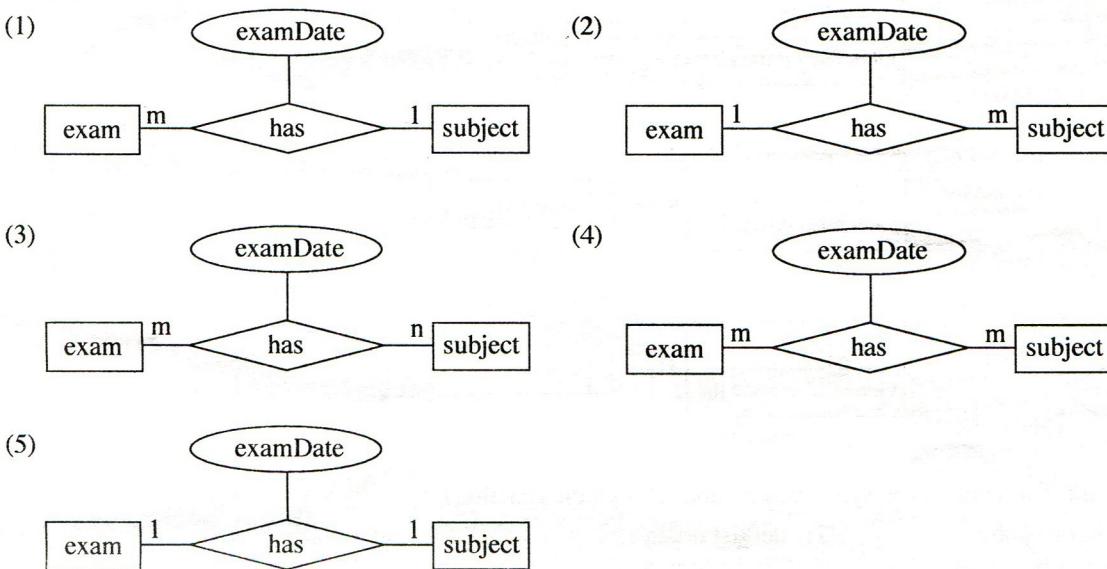
exam

examId	name
EXAM001	GCE OL
EXAM002	GCE AL

examSubject

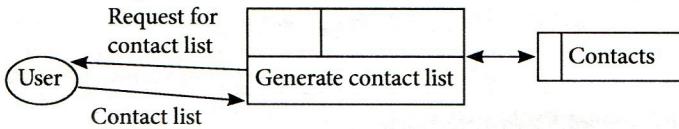
examId	subjectId	examDate
EXAM001	SUB001	2014.12.12
EXAM002	SUB001	2014.8.21
EXAM002	SUB002	2014.8.21
EXAM002	SUB003	2014.8.21

- 31 Which of the following is the most suitable Entity Relationship (ER) diagram to represent the above relational database tables?

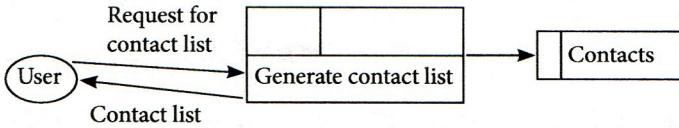


36. Which of the following segment of a Data Flow Diagram best represents the process of getting the contact list of a mobile phone?

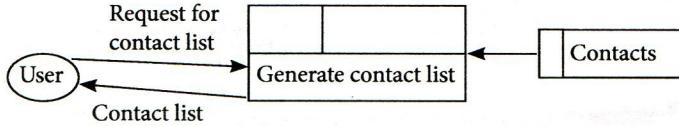
- (1) Request for contact list



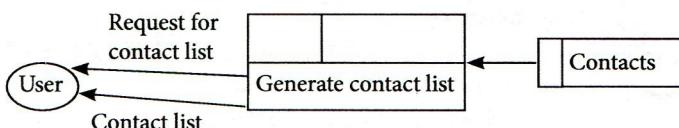
- (2) Request for contact list



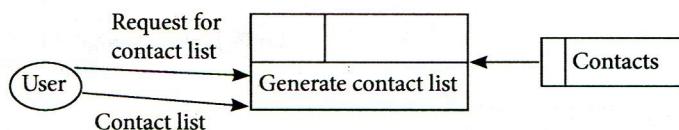
- (3) Request for contact list



- (4) Request for contact list



- (5) Request for contact list



37 Which of the following is a syntactically correct Python function?

- (1) def isLarger(a,b):
 return a > b

- (2) def isLarger(a,b):
 return a > b

- (3) def isLarger(a,b)
 return a > b

- (4) function isLarger(a,b):
 return a > b

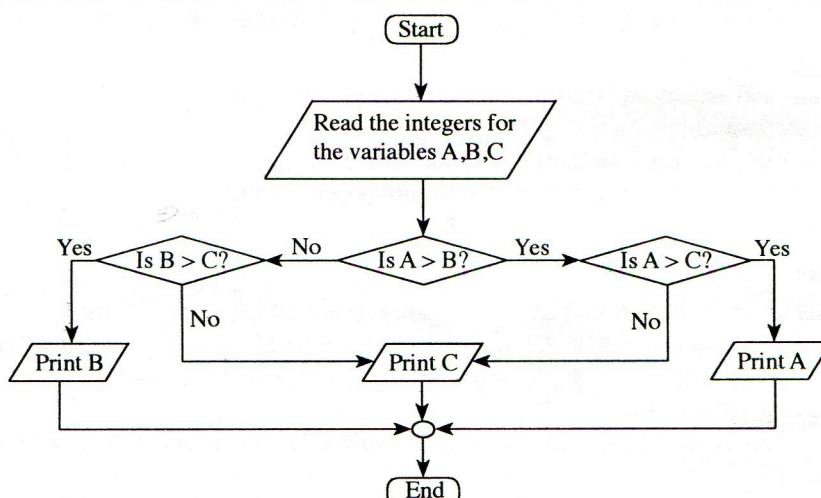
- (5) function isLarger(a,b)
 if(a > b)

 return a

else

 return b

● Use the following flowchart to answer questions 38 and 39.



38. If a user input 20, 27, 18 for the variables, A, B, C respectively the output will be

- (1) 18

- (2) 20

- (3) 27

- (4) 20, 27

- (5) 27, 18

39. Which of the following Python programs correctly implements the above flowchart?

```
(1) A = int(input("Enter a value for A."))
B = int(input("Enter a value for B:"))
C = int(input("Enter a value for C:"))

if (A > B):
    if(A > C):
        print(A)
    else:
        if(B > C):
            print(B)
        else:
            print(C)
```

(2) A = int(input("Enter a value for A."))
B = int(input("Enter a value for B:"))
C = int(input("Enter a value for C:"))
if (A > B):
 if(A > C):
 print(A)
 else:
 print(C)
else:
 if(B > C):
 print(B)

```
(3) A = int(input("Enter a value for A."))
B = int(input("Enter a value for B:"))
C = int(input("Enter a value for C:"))

if (A > B):
    if(A > C):
        print(A)
    else:
        print(C)

else:
    if(B > C):
        print(B)
    else:
        print(C)
```

```
(4) A = int(input("Enter a value for A."))
B = int(input("Enter a value for B:"))
C = int(input("Enter a value for C:"))
if (A > B):
    if(A > C):
        print(C)
    else:
        print(A)
else:
    if(B > C):
        print(C)
    else:
        print(B)
```

```
(5) A = int(input("Enter a value for A."))
B = int(input("Enter a value for B:"))
C = int(input("Enter a value for C:"))

if (A > B):
    if(A > C):
        print(A)
    else:
        print(C)

else:
    if(B > C):
        print(C)
    else:
        print(B)
```

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

```
a = ['a', 2, [3, 'b', 4], [6, "abc", 9], 8]
print(a[2][2])
```


41 What is the value of variable z after executing the Python statement `z = 1 == 2`?

- (1) 0 (2) 1 (3) True (4) False (5) Null

42. Which of the following Python expressions shows the correct evaluation order of the Python expression $10 - 4 * 3 / 2 - 5$?

- $$(1) (((10 - 4) * 3)/2) \quad 5 \qquad (2) ((10 - (4 * 3))/2) \quad 5 \qquad (3) 10 - (4 * ((3/2) - 5))$$

$$(4) 10 - ((4 * (3/2)) - 5) \qquad (5) (10 - ((4 * 3)/2)) \quad 5$$

43. Consider the following statements on Static Random Access Memory (SRAM):

- A SRAM needs periodic refreshing
 - B It is used for Cache memory
 - C Registers are made of SRAMs

Which of the above statement(s) is/are correct?

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

44. Consider the following HTML style rules:

- A body {color: red;}
- B h1 {color: red;}
- C p {color: red;}
- h1 {color: red;}
- D p, h1 {color: red;}

Which of the above rules will display h1 elements and all the paragraphs of the following document in red?

```
<body>
    <h1>Trees</h1>
    <p>Coconut tree</p>
    <p>Rubber tree</p>
    <h1>Flowers</h1>
    <h2>Rose</h2>
</body>
```

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

45. Which of the following systems should always be based on Artificial Intelligence?

- A Expert Systems
- B Enterprise Resource Planning (ERP) Systems
- C Multi-Agent Systems
- D Geographical Information Systems

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

46. Consider the following statements about an automated system:

- A Human intervention is not required or minimally required.
- B All the operations of the machine are controlled by the micro chip installed in the machine.
- C A system that processes daily banking transactions can be considered as an automated system.

Which of the above statement(s) is/are correct?

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

47 Consider the following statements regarding the requirements of a Bank ATM:

- A A customer shall be able to inquire his/her bank balance.
- B A customer should be able to deposit money through ATM.
- C Maximum withdrawal amount per day is Rs. 20,000.

Which of the above requirements is/are functional requirement(s) of the ATM?

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

48. Consider the following systems:

- A Human blood circulatory system
- B Human digestive system
- C Human nervous system

The system(s) that can be considered as open system(s) is/are

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

49. Consider the following statements about Software Agents:

- A A software agent is capable of autonomous actions in order to meet its design objectives.
- B A software agent is capable of user-directed actions in order to meet users' objectives.
- C A multi-agent system is composed of set of interacting agents.

Which of the above statements is/are true?

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

50. Consider the following statements about syntax or semantic errors in Python programming language:

- A A program with syntax errors will not run to the end of the program.
- B A program with only semantic errors will not run to its end.
- C Syntax errors in programs are also called logical errors.
- D Programs with semantic errors may not produce correct outputs for some inputs.

Which of the following statements is correct?

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