දිවයිනේ ජ්‍යෙෂ්ඨතම ICT ගුරුවරයාගේ 17 වන
වාර්ෂික මහා සම්මන්ත්‍රණය,

ICT 2025 A/L Final SEMINAR

- ✓ ඒඳින මුළු විෂය නිර්දේශයම ආවරණය වන පරීදි අනුමාන ප්‍රශ්න පත්‍රයක් ලබා දේ..
- ✓ ඔනෑම මට්ටමක සිටින ඔබට අසීරු පඩම් වලින් අනිවාර්ය ලකුණු 30ක් උකහා පෙළ ප්‍රශ්න පත්‍රයට ලබා දේ

බුද්ධ ශ්‍රීමාල්

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
இலங்கைப் பரீடசைத் திணைக்களம்
Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2024
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீடசை, 2024
General Certificate of Education (Adv. Level) Examination, 2024

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. Consider the following data:

A – temperature values given by a sensor
B – creator's name and the date of creation of a file saved in a computer
C – collection of posts and responses shared on a social media platform

Which of the following correctly categorizes the above data?

(1) A – big data, B – continuous data, C – metadata
(2) A – continuous data, B – big data, C – metadata
(3) A – continuous data, B – metadata, C – big data
(4) A – metadata, B – big data, C – continuous data
(5) A – metadata, B – continuous data, C – big data

2. Which of the following are good examples for *batch processing*?

A – a system that outputs the presently vacant vehicle parking space closest to a user
B – a system that automatically backs up the files in a computer at the end of each day
C – a system that sorts the customer orders received during a day according to value

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

3. Select the answer containing the correct replacement for Ⓐ and Ⓑ in the following paragraph:

Although .....Ⓐ..... is very old, it still plays a central role in the daily operations of the world's largest corporations. In addition to its power, the other main reason for its popularity is its .....Ⓑ..... .

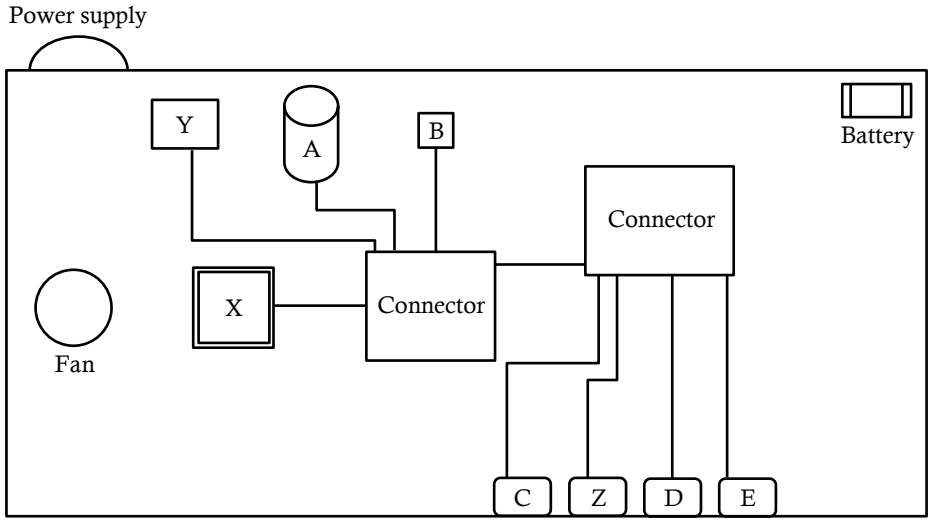
(1) A – cloud computing, B – non-reliance on the Internet
(2) A – cloud computing, B – non-reliance on service providers
(3) A – the main frame computer, B – low cost
(4) A – the main frame computer, B – reliability
(5) A – the main frame computer, B – small size

4. A village of houses constructed mainly with the aid of a *special equipment* is nearing completion in the United States of America. This equipment has been used to construct the walls of the houses with the foundations and the roofs constructed in the traditional way. This equipment reduces the number of workers required for the construction process and has made the process faster and cheaper with minimized construction waste. What could be this special equipment?

(1) a digitizer (2) a large 3D printer (3) a plotter
(4) a pointing device (5) a joystick

[*See page two*

5. The figure below shows some components and connections on a computer motherboard.



The labels A–E indicate the following:

A – hard disk
B – ROM BIOS
C – connector for audio port
D – connector for network port
E – connector for USB port

What are indicated by the labels X, Y and Z respectively?

(1)	X – connector for video port	Y – CPU	Z – memory
(2)	X – connector for video port	Y – memory	Z – CPU
(3)	X – CPU	Y – memory	Z – connector for video port
(4)	X – CPU	Y – connector for video port	Z – memory
(5)	X – memory	Y – connector for video port	Z – CPU

6. A person notes that a desktop computer was booting very fast from the hard disk after the computer was repaired. Which of the following would have been done during the repair?

(1) decreasing RAM and reinstalling the operating system
(2) formatting the hard disk only
(3) installing a new CD drive only
(4) replacing the small fan inside the computer only
(5) replacing the hard disk with a Solid-state Drive (SSD) and reinstalling the operating system

7. What is the correct binary equivalent of decimal 14.25_{10}?

(1) 1001.10 (2) 1010.11 (3) 1011.01 (4) 1110.01 (5) 1111.10

8. What is the correct decimal equivalent of octal 120_8?

(1) 10 (2) 17 (3) 80 (4) 136 (5) 640

9. Which of the following are correct?

I : $EB7_{16} = 1110\ 1011\ 0111_2$
II : $84_{10} = 1010100_2$
III : $753_8 = 1001011_2$

(1) I only (2) I and II only (3) I and III only
(4) II and III only (5) All I, II and III

[*See page three*

10. The second and third rows of the following table contain two English words and their binary representations according to the ASCII code. The binary representation of No! is kept blank.

Word	Binary representation
no	1101110 1101111
N!	1001110 0100001
No!	

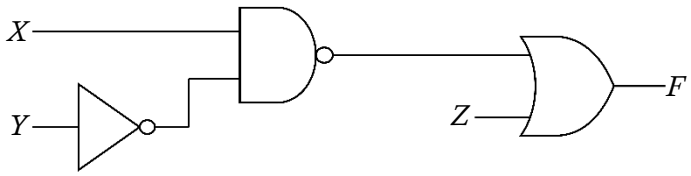
What is the correct replacement for the blank?

(1) 0100001 1001110 1101111
(2) 1001110 0100001 1101111
(3) 1001110 1101111 0100001
(4) 1101110 0100001 1101111
(5) 1101110 1101111 0100001

11. $11001_2 + 10001_2 =$

(1) 101010_2 (2) 101011_2 (3) 101100_2 (4) 111001_2 (5) 111010_2

12. Which of the following express the output (F) of the given circuit?



(1) $(X + \overline{Y})Z$ (2) $\overline{(X + \overline{Y})} + Z$ (3) $\overline{(X + \overline{Y})}Z$ (4) $X\overline{Y} + Z$ (5) $\overline{(X\overline{Y})} + Z$

13. Applying *Double complement* and *De Morgan's* laws to $\bar{x} + yz$ results in

(1) $xy + \overline{z}$ (2) $\bar{x}\bar{y} + z$ (3) $\bar{x}\bar{y}z$ (4) $\overline{x(\overline{yz})}$ (5) $\bar{x}\bar{y} + yz$

14. What is the most simple Boolean expression that can be obtained through the given Karnaugh map?

z \ xy	00	01	11	10
0	0	1	1	1
1	0	1	1	0

(1) y (2) xz (3) $x\bar{z}$ (4) $\bar{x}z$ (5) $y + x\bar{z}$

15. Which of the following are correct regarding the *Process Control Block (PCB)?*

A – It is a data structure used by the operating system to manage information about a process.
B – It is created during the compilation of a program
C – The *Program Counter* values of two PCBs can be the same.

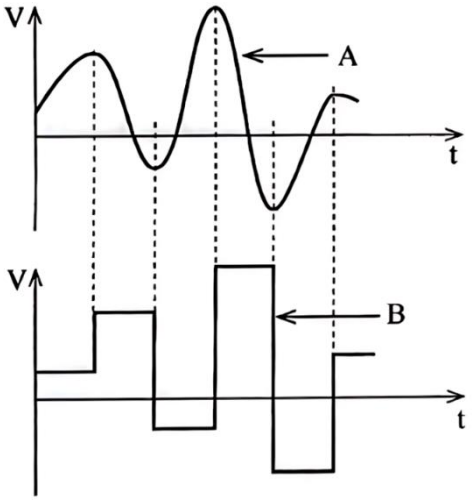
(1) A only (2) A and B only (3) A and C only
(4) B and C only (5) All A, B and C

[*See page four*

16. Amara switches on a multi-user computer system. After it has booted, Sama logs on to the computer from a terminal and starts a web browser. After sometime, Sama starts a text editor also to work on her Python program. Then Rani also logs on to the computer from another terminal and starts a web browser.
Which of the following are possible execution sequences on the processor of this computer?
(1) BIOS → OS → Sama's web browser process → OS → Sama's text editor process → OS → Rani's web browser process → OS → Sama's text editor process → ...
(2) BIOS → OS → Sama's web browser process → Sama's text editor process → OS → Rani's web browser process → OS → Sama's web browser process → ...
(3) BIOS → Sama's web browser process → Sama's text editor process → OS → Rani's web browser process → OS → Sama's text editor process → ...
(4) OS → BIOS → Sama's web browser process → OS → Sama's text editor process → OS → Rani's web browser process → OS → Sama's web browser process → ...
(5) OS → BIOS → Sama's web browser process → Sama's text editor process → OS → Rani's web browser process → OS → Sama's web browser process → ...

17. Each block of a disk is 512 bytes. When a file of size 1959 bytes is stored on that disk, how many bytes allocated to the file would be wasted?
(1) 89 (2) 423 (3) 512 (4) 601 (5) 1447

18. Which of the given statements (I, II, III) are true with respect to the following two diagrams?
(Note: V – Voltage, t – time)



I – A depicts an analog signal.
II – B depicts a digital signal.
III – B is a digitized version of A.

(1) I only (2) II only (3) III only
(4) II and III only (5) All I, II and III

19. Which of the following is correct regarding parity bits?
(1) The parity bit in a set of bits is adjusted after that set of bits is communicated.
(2) The parity bit for a set of bits is selected to ensure the total number of 1-bits in the set is either even or odd.
(3) The transmission speed of a communication is increased by parity bits.
(4) Parity bits are added after a communication to correct errors.
(5) Encryption needed in a data transmission is provided by parity bits.

20. What is done by a modem when it receives an analog signal from a PSTN (Public Switched Telephone Network) line?
(1) It amplifies the signal for better clarity.
(2) It compresses the signal for storage.
(3) It demodulates the signal back into digital form.
(4) It encrypts the signal for security.
(5) It modulates the signal further for transmission.

[*See page five*

21. Which of the following best describes a *switch* in a network?

(1) It amplifies data signals for clearer transmission.
(2) It always broadcasts all incoming data to every device in the network.
(3) It compresses data for more efficient transmission.
(4) It directs data only to the specific device for which the data is intended.
(5) It stores data for future processing.

22. How many usable host addresses are available in the 192.168.100.0/27 IP address block?

(1) 16 (2) 30 (3) 32 (4) 62 (5) 64

23. Which of the following are properties of the Transmission Control Protocol (TCP)?

A – detection and correction of any errors in a communication
B – receiver acknowledging to the sender about the receipt of a data packet
C – ensuring data packets are received in order

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

24. A new system must be delivered completely to the client by a given date. There should not be any partial deliveries. Further, the system architecture and design must be fully defined before any coding began.
Which of the following are suitable models to develop this system?

A – waterfall B – spiral C – agile

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

25. During the feasibility analysis of a software development project, it was discovered that the development team does not have the knowledge and the skills to develop the software. Which component of the feasibility study would have identified this issue?

(1) economic feasibility (2) legal feasibility
(3) operational feasibility (4) schedule feasibility
(5) technical feasibility

26. Which of the following shows the correct order of stages in the System Development Life Cycle?

(1) Feasibility study → Requirements analysis → System design → Implementation → Testing → Deployment
(2) Feasibility study → System design → Requirements analysis → Implementation → Testing → Deployment
(3) Requirements analysis → Feasibility study → System design → Testing → Deployment → Implementation
(4) Requirements analysis → System design → Feasibility study → Deployment → Testing → Implementation
(5) System design → Requirements analysis → Feasibility study → Implementation → Testing → Deployment

27. Which of the following is **not true** regarding the *prototyping* technique used in system development?

(1) Prototypes need to be approved by the users, during the 'system testing' phase.
(2) Prototyping is neither necessary nor appropriate in every project.
(3) Successful prototyping helps to develop a system that better addresses user needs and expectations.
(4) Successful prototyping helps to eliminate costly late changes to a system.
(5) To get the benefits of prototyping, user feedback on the prototypes is extremely important.

[*See page six*

28. Which of the following statements regarding *software tests* are correct?

A – *White-box* tests involve testing the internal structures and workings of a software.
B – *Unit tests* are usually performed after the *system test*.
C – System developers should take every effort to make the *acceptance test* successful.

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

- Read the following description to answer questions **29** and **30**.

A *playground reservation system* is needed for students and others to reserve the school playground (which is adjoining the school) for team sports. Each reservation is for two hours. All non-students will need to pay for their reservations. The reservations are to be made using the National Identity Card (NIC) numbers. The NICs are to be verified at the playground gate before a team is let in.

The algorithm that could be used for the reservation process is shown below with blanks labelled **A** – **D**.

```
BEGIN
   A
   IF user interested to make a reservation THEN
      B
      C
      IF user is not a student THEN
          D
      ENDIF
      Confirm booking and update reservation database
   ENDIF
END.
```

29. Which of the following contains the suitable replacements for the above blanks?

(1) **A** – DISPLAY existing bookings **B** – GET date/time **C** – GET NIC number **D** – Complete user's credit/debit card payment
(2) **A** – DISPLAY existing bookings **B** – GET date/time **C** – Complete user's credit/debit card payment **D** – GET NIC number
(3) **A** – DISPLAY existing bookings **B** – GET NIC number **C** – Complete user's credit/debit card payment **D** – GET date/time
(4) **A** – GET date/time **B** – DISPLAY existing bookings **C** – GET NIC number **D** – Complete user's credit/debit card payment
(5) **A** – GET NIC number **B** – DISPLAY existing bookings **C** – GET date/time **D** – Complete user's credit/debit card payment

30. Which of the following suggestions about the above system is **not** suitable?

(1) The list of reservations for a given date should be provided when needed.
(2) Each time a student is making a reservation he/she should be required to enter his/her home address.
(3) It is suitable to check the validity of the NIC number.
(4) Reservations should not clash with school times.
(5) For fairness, the number of reservations that a particular NIC number is allowed per day should be limited.

[*See page seven*

31. Consider the following relation about a student who is registered in a programme at an institute:
STUDENT(Sno, Snic, Sname, Sphone, Prog_number)

Note: Sno - the unique registration number of the student
Snic - the national identity card number of the student
Sname - the name of the student
Sphone - a phone number of the student
Prog_number - the unique number of the programme for which the student has registered

Which of the following are correct?

A – Sno can be the primary key.
B – Snic can be a candidate key.
C – Prog_number can be a foreign key.

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

32. Which of the following are true?

A – A table can have multiple candidate keys.
B – A primary key is always a candidate key.
C – A candidate key of one table can be used as a foreign key in another table.

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

33. Which of the following are examples of *one-to many relationships*?

A – A customer can place many orders, but each order is placed by only one customer.
B – An employee can be assigned to multiple projects, and each project can have multiple employees.
C – One department has one manager, and each manager manages multiple departments.
D – A supplier can supply only one item, and an item can be supplied by only one supplier.

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

34. Match the **Normal forms** labelled from **0** to **3** to the corresponding **Descriptions** labelled from **A** to **D**.

Normal form
0 – Zero normal form
1 – First normal form
2 – Second normal form
3 – Third normal form

Description
A. single valued attributes
B. full functional dependency
C. repeating data
D. transitive dependency

(1) **0** – A, **1** – B, **2** – C, **3** – D
(2) **0** – A, **1** – C, **2** – B, **3** – D
(3) **0** – B, **1** – C, **2** – A, **3** – D
(4) **0** – C, **1** – A, **2** – D, **3** – B
(5) **0** – D, **1** – B, **2** – C, **3** – A

35. What is the primary purpose of database *normalization*?

(1) eliminating data redundancy and anomalies
(2) increasing the number of tables in the database
(3) organizing data into logical structures and relationships
(4) simplifying database queries
(5) speeding up database queries

[*See page eight*

36. Which of the following will change all occurrences of 'Mahawa' in the 'City' attribute of USER in relation to 'Maho'?

(1) MODIFY USER SET City = 'Maho' WHERE City = 'Mahawa';
(2) MODIFY USER SET City = 'Mahawa' INTO City = 'Maho';
(3) UPDATE USER SET City = 'Mahawa' INTO City = 'Maho';
(4) UPDATE USER SET City = 'Maho' WHERE City = 'Mahawa';
(5) UPDATE USER SET City = 'Maho' WHERE City != 'Mahawa';

37. Which of the following lists the given SQL statement clauses in the correct order?

(1) SELECT,	FROM,	WHERE,	GROUP BY,	HAVING
(2) SELECT,	GROUP BY,	HAVING,	FROM,	WHERE
(3) SELECT,	HAVING,	FROM,	WHERE,	GROUP BY
(4) SELECT,	WHERE,	GROUP BY,	HAVING,	FROM
(5) SELECT,	WHERE,	HAVING,	GROUP BY,	FROM

38. What would be the execution output of the following Python code if a = 5, b = 3, c = 2 and d = 6?

```
x = (a - b) ** c + d % c
print(x)
```

(1) –22 (2) 0 (3) 1 (4) 4 (5) 7

39. What is the execution output of the following Python code?

```
qns = ["a" , "b"]
for x in range (1,3):
    for y in qns:
        print(x,y, end='  ')
```

(1) 0 a 2 b (2) 1 a 3 b (3) 1 a 1 b 2 a 2 b
(4) 1 a 1 b 3 a 3 b (5) 1 a 3 a 1 b 3 b

40. What is the execution output of the following Python code?

```
def list_operation(nlist):
    for i in range(len(nlist)):
        if i % 2 == 0:
            nlist[i] = nlist[i] ** 2
        else:
            nlist[i] = nlist[i] + 3
    return nlist
numbers = [1, 2, 3, 4, 5]
output = list_operation(numbers)
print(output)
```

(1) [1, 2, 3, 4, 5] (2) [1, 5, 9, 7, 25] (3) [2, 5, 6, 7, 10]
(4) [4, 4, 6, 16, 8] (5) [4, 6,16, 8, 36]

41. What is the execution output of the following Python code?

```
marks = [(1, "amara", 96), (2, "rajah", 34),
    (3, "rani", 49),(4, "fahim", 68) ]

i = -1
while i < (len(marks) - 1):
    i += 1
    if marks[i][2] < 50:
        continue
    print(marks[i][1], end="  ")
```

(1) 1 4 (2) 1 amara 4 fahim (3) amara fahim
(4) rajah (5) rajah rani

[*See page nine*

42. The output shown in **Figure 42.2** can be obtained using **exports_imports.txt** shown in **Figure 42.1** by executing the Python code shown in **Figure 42.3** with suitable replacements for its blanks labelled **P – U**.

```
Garments E 45%
Fuel I 20%
Machinery I 15%
Tea E 20%
Chemicals I 10%
Rubber E 15%
```

Figure 42.1: exports_imports.txt file

```
Garments : 45%
Tea : 20%
Rubber : 15%
```

Figure 42.2: The output

```
P = open('exports_imports.txt', 'r')
while True:
  Q = P .readline( )
  if not Q :
     R
  item = Q.split( )
  if item[S] == "E":
     print(item[T], ":",item[U])
P.close( )
```

Figure 42.3: The Python code

Which option contains the suitable replacements for the blanks?

(1) **P** – file	**Q** – line	**R** – break	**S** – 1	**T** – 0	**U** – 2
(2) **P** – file	**Q** – line	**R** – continue	**S** – 2	**T** – 1	**U** – 3
(3) **P** – file	**Q** – line	**R** – continue	**S** – 2	**T** – 1	**U** – 3
(4) **P** – line	**Q** – file	**R** – continue	**S** – 1	**T** – 0	**U** – 2
(5) **P** – line	**Q** – file	**R** – break	**S** – 1	**T** – 0	**U** – 2

43. Which of the following statements are true about the web pages created using web authoring tools?

A – The HTML Code for such a page is automatically generated.
B – Such a page can be enhanced by manually adding HTML tags later.
C – Multimedia content cannot be added to them.

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

44. What is the primary purpose of an HTML *style sheet*?

(1) to apply formatting and styles to HTML elements.
(2) to create databases for a website.
(3) to define the structure of a webpage.
(4) to send form data to databases.
(5) to update the content of a webpage.

45. Which of the following can be used to change the look of an entire website by changing just one file?

A – external CSS B – inline CSS C – internal CSS

(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. For what purpose is POST used in an HTML form?

(1) to display a confirmation message after form submission
(2) to display form data on the screen
(3) to refresh the web page
(4) to retrieve data from the server
(5) to send form data to the server

[*See page ten*

47. Which of the following statements are correct regarding *website publishing*?

A – One has to obtain a *domain name* to publish a website.

B – Before deciding to host a website on one's own computer, one has to do a good cost-benefit analysis on the same.

C – *Shared hosting* will provide faster access to the site's users all the time compared to either *Virtual Private Server (VPS) hosting* or *dedicated server hosting*.

(1) A only (2) A and B only (3) A and C only

(4) B and C only (5) All A, B and C

48. Which of the following is correct?

(1) Arduino Uno is the protocol used for setting up simple IoT applications.

(2) LDR and LED are sensors used in Arduino Uno based IoT applications.

(3) Serial.begin(9600) provides a valid baud rate to initiate the serial communication between the Arduino Uno board and the computer.

(4) Since Arduino Uno does not have a hard disk it is not subjected to unauthorized data access.

(5) An ethernet shield must be connected to the four pins between A0 – A5 of the ATMega328P microcontroller.

49. Which of the following statements are true?

A – Generative Artificial Intelligence (AI) tools can produce new content or data, according to their learned patterns.

B – The use of Generative AI Tools such as GPT with user prompts is an example of machine-to-machine coexistence.

C – Although AI is used today, *strong AI* (machines possessing general intelligence and capabilities that are similar to human cognition) still remains a theoretical concept.

(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. Consider the following statements P and Q:

P – A *qubit* of a quantum computer can have a higher number of states than a bit of a traditional computer.

Q – Quantum computing promises to perform calculations, currently beyond traditional computer's reach, at incredible speeds.

Which of the following is valid regarding the above two statements?

(1) Both statements P and Q are correct and statement P gives the reason for Statement Q.

(2) Both Statements P and Q are correct but the points presented in the two statements are not related.

(3) Statement P is correct but statement Q is incorrect.

(4) Statement P is incorrect but statement Q is correct.

(5) Both statements P and Q are incorrect.

❋ ❋ ❋