Sample Paper

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Quantitative Reasoning

1. Given: $f(x) = (1 + 1/x)$ and $f(k) \times f(k + 1) \times f(k + 2) \times ... \times f(k + 99) = 11$.

Quantity A: k

Quantity B: 11

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

2. If x, y and z are positive integers and $p = \{[(x - 1)2/x] + 2\} + \{[(y - 1)2/y] + 2\} + \{[(z - 1)2/z] + 2\}$, then $p < 6$.

A. Always
B. Sometimes
C. Never

3. If p and q are numbers such that the pair of linear equations $(p + 2)x + (q - 1)y = 10$ and $(q + 2)x + (p - 1)y = 10$ have infinite solutions of x and y, then $p = q$.

A. Always
B. Sometimes
C. Never

4. Given: $32x - 12(3x) + 27 = 0$.

Quantity A: x

Quantity B: $3x$

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

5. When working individually, A and B take 6 days and 8 days to paint a fence. They started working together. After 2 days, C also joined them. If the work was completed after 1 more day (3 days in total), in how many days can C paint the entire fence alone?

A. 3 days

B. $\dfrac{10}{3}$ days

C. 4 days

D. $\dfrac{13}{3}$ days

E. 8 days

6. A milk and honey mixture is 20% honey. Another 120 ml of honey is added to it. After this addition, the resulting mixture has 150 ml of honey. What is the volume of milk in the final mixture?

A. 90 ml
B. 105 ml
C. 120 ml
D. 135 ml
E. 150 ml

7. A, B and C have some marbles. The ratio of the number of marbles with A to the number with B is 2 : 1. Also, the number of marbles with A to the number with C is 1 : 4. What is the approximate percentage of the total number of marbles that are with C?

A. 25.00%
B. 33.33%
C. 72.72%
D. 75.00%
E. 80.00%

8. A can draw 10 illustrations in 5 days. B is three times as productive in twice the amount of time (in comparison to A). How many illustrations can B draw in a day?

A. $\dfrac{1}{2}$

B. 1

C. $\dfrac{3}{2}$

D. 2
E. 3

9. Given: A right-angled triangle has sides of lengths 6 cm, 8 cm and 10 cm.

Quantity A: Volume of the cone formed by rotating the triangle about the side of length 6 cm

Quantity B: Volume of the cone formed by rotating the triangle about the side of length 8 cm

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

10. A cone fits perfectly (height-wise) inside a 6 cm × 8 cm × 10 cm cuboid such that the entire base of the cone rests on one of the faces of the cuboid. Also, the circumference of the base of the cone just touches one of the pairs of the opposite sides of the face of the cuboid which is beneath it.

 The volume of the cone is 32π cm3.

A. Always
B. Sometimes
C. Never

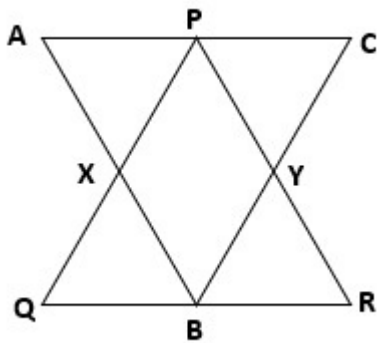**11.** In triangle ABC, AB = 6 cm, AC = BC = 7 cm. Also, CP is a median. Which of the following is the area of triangle ABC?
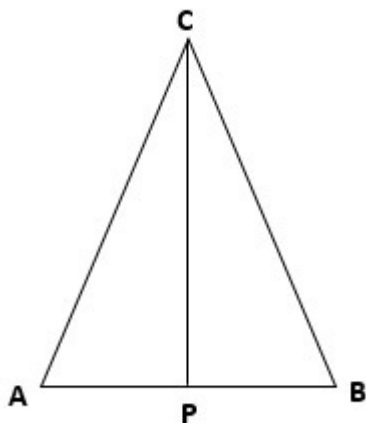
A. 2√10 cm2
B. 6√3 cm2
C. 8√3 cm2
D. 12√2 cm2
E. 6√10 cm2

12. ABC and PQR are 2 identical equilateral triangles overlapping each other.

The area of the overlapping region PXBY is equal to twice the area of triangle AXP.

A. Always
B. Sometimes
C. Never

QUESTIONS 13 THROUGH 16 REFER TO THE FOLLOWING INFORMATION
Directions: There are four questions based on the table that follows, one of which is asked alongside.

The table shows the data regarding the percentage change in the number of units manufactured by a plant during different months in Year 2.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	
Percentage change (over last month)	10%	18%		-5%		6%		
Percent point change in percentage change (over last month)			-20		8		-8	

Note: Round up the decimal values obtained (if any) during calculations to the nearest integer value.

13. Quantity A: Net percentage change in the number of units manufactured from December of Year 1 to March of Year 2

Quantity B: 35%

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

14. If the difference between the number of units manufactured in April of Year 2 and July of Year 2 was 1.7 million, what was the approximate number of units manufactured in April of Year 2?

A. 13 million
B. 18 million
C. 22 million
D. 25 million
E. 29 million

15. Which of the following is the approximate simple average monthly percentage change in the number of units manufactured from February of Year 2 to May of Year 2?

A. −2.10%
B. −1.33%
C. 0.50%
D. 0.67%
E. 0.75%

16. If the number of units manufactured in June of Year 2 was 12 million, which of the following was the approximate average number of units manufactured per month from May of Year 2 to July of Year 2?

A. 10.3 million
B. 10.9 million
C. 11.7 million
D. 12.1 million
E. 12.4 million

17. If the median of a set consisting of **n** consecutive odd positive integers is an even integer, the sum of the mean and the range of the set is an odd integer.

A. Always
B. Sometimes
C. Never

18. Given: **a** and **b** are positive integers and **a** > **b**

The median of a set consisting of 5 terms: a^2, **ab**, b^2, $(a - b)2$ and $(a + b)2$ is **ab.**

A. Always
B. Sometimes
C. Never

19. For a set of **n** integers in arithmetic progression, the difference between twice the median of the set and the range of the set is equal to twice the first term.

A. Always
B. Sometimes
C. Never

20. Two sets of numbers having medians **p** and **q** respectively are combined to form a new set. If **p** > **q**, then the median '**m**' of the new set satisfies **q** < **m** < **p.**

A. Always
B. Sometimes
C. Never

Logical Reasoning

QUESTIONS 21 THROUGH 24 REFER TO THE FOLLOWING INFORMATION
There are four questions based on the information below, one of which is asked alongside.

Manjeet, Rahim, Ram and Divya are four friends who live in a village. It is known that:

I. Each friend lives in a differently coloured house - orange, yellow, green and blue.
II. Each friend owns a different pet - Bee, Dee, Cee and Tee.
III. The pets each feed on different things - leaves, fish, vegetables and insects.
IV. Manjeet does not live in the blue house.
V. Tee eats leaves but does not live with Rahim or Divya.
VI. Dee does not eat insects.
VII. Ram lives in an orange house but does not own Cee or Tee.
VIII. The pet that feeds on insects does not live in the green or blue house.
IX. Rahim does not feed vegetables or insects to his pet, which is neither Dee nor Cee.

21. Which pet eats fish?

A. Bee
B. Cee
C. Dee
D. Manjeet's pet
E. Cannot be determined

22. Who lives in the green house?

A. Divya
B. Manjeet
C. Divya or Rahim
D. Manjeet or Divya
E. Cannot be determined

23. What does Cee eat?

A. Fish
B. Insects
C. Vegetables
D. Either fish or vegetables
E. Cannot be determined

24. Who lives in the blue house?

    A. Cee
    B. Dee
    C. Tee
    D. Rahim
    E. Divya

25. Select the conclusion that best follows from the statement given below.

Statement:

No one who likes to watch baseball likes to watch basketball, and all those who like to watch basketball also like to watch football.

Conclusions:
I. All those who like to watch football like to watch baseball.
II. No one who likes to watch baseball likes to watch football.
III. Some of those who like to watch football like to watch baseball.

   A. Only conclusion I follows
    B. Only conclusion II follows
    C. Only conclusion III follows
    D. Both conclusions I and III follow
    E. None of the conclusions follow

26. Select the conclusion that best follows from the statement given below.

Statement:

In a library, some members were issued non-fiction non-academic books and these were returned exactly 3 weeks later. Some members were issued non-academic fiction books written by American authors and they returned these books within 20 days. More than half the members were issued academic textbooks and these were returned after 20 days.

Conclusions:
I. The non-academic fiction books were borrowed by library members for the shortest duration.
II. Most library members prefer to read non-academic non-fiction books.
III. Academic textbooks were perhaps the most issued books in the library.
IV. Non-academic fiction books are preferred more than the non-academic non-fiction books by library members.

    A. Only conclusion I follows
    B. Only conclusion II follows
    C. Only conclusion III follows
    D. Both conclusions I and III follow

E. Both conclusions II and IV follow

27. Select the conclusion that best follows from the statements given below.

Statements:
In a university, some students can speak English and German, but not French.
Some students can speak French and Japanese, but not Korean.
Some students can speak German and Korean, but not Japanese.
Some students can speak English and Japanese, but not Korean.

Conclusions:
I. All students who speak Japanese can speak English.
II. Among the students who speak German, some can speak English and some can speak Korean.
III. Students who speak French can speak German as well.

A. Only conclusion I follows
B. Only conclusion II follows
C. Only conclusion III follows
D. Both conclusions I and II follow
E. Both conclusions II and III follow

28. Select the conclusion that best follows from the statement given below.

Statement:
Some mangoes are exported to Europe and most mangoes are consumed in India. In India, some mangoes are used for preparing mango juice and some are used for making jellies. All mangoes are consumed by humans unless they are raw mangoes. All raw mangoes are exported outside India.

Conclusions:
I. All the mangoes exported to Europe are unfit for human consumption.
II. Mango juice can also be prepared with raw mangoes.
III. Most mangoes are consumed in India in the form of mango jelly.
IV. No raw mango was used to prepare jelly.

A. Only conclusion I follows
B. Only conclusion II follows
C. Only conclusion III follows
D. Only conclusion IV follows
E. None of the conclusions follow

**29.** Based on the given image, which of the following options must be true?
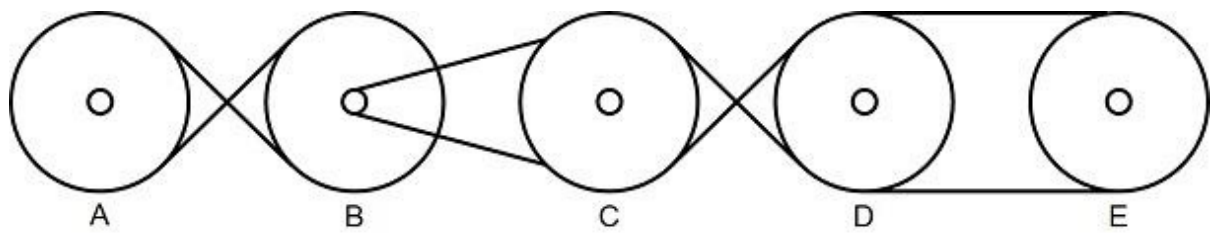
A. Wheels A and D rotate in the same direction. B. Wheels A and C rotate in the same direction as wheels B and E. C. Wheels A and E rotate in the same direction as wheels B and C. D. Wheels B and C rotate in the same direction as wheels D and E. E. If wheel A rotates clockwise, wheels B, D and E rotate clockwise.

**30.** Based on the given image, which of the following options must be true?
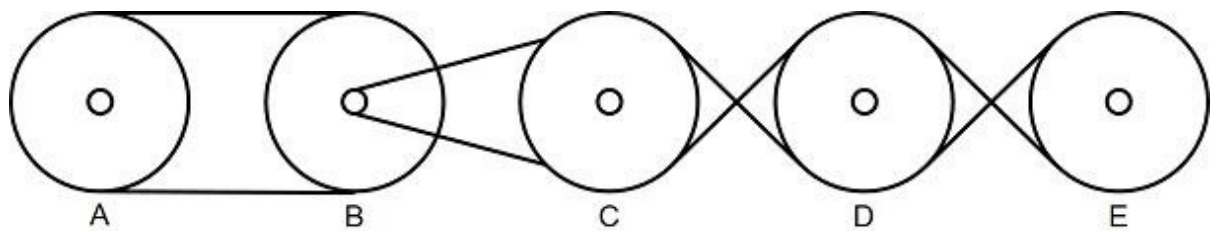
A. Wheels A and D rotate in the same direction. B. Wheels A and C rotate in the same direction as wheels B and E. C. Wheels A and D rotate in the same direction as wheels B and C. D. Wheels B and C rotate in the same direction as wheels D and E. E. If wheel A rotates clockwise, wheels B, D and E rotate clockwise.

31. Based on the given image, which of the following options must be true?

Conveyor 2
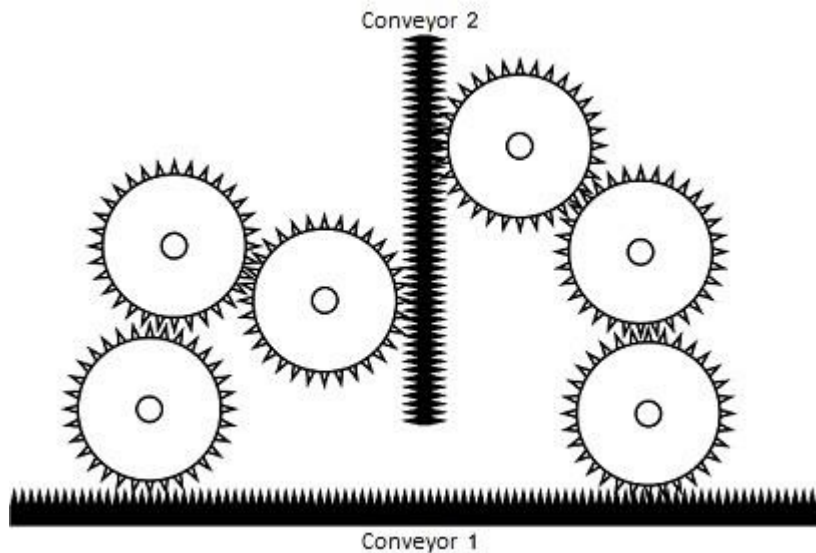
Conveyor 1

A. None of the conveyors move due to a mechanical error.
B. When conveyor 1 moves to the left, conveyor 2 moves up.
C. When conveyor 1 moves to the right, conveyor 2 moves up.
D. When conveyor 1 moves to the left, conveyor 2 moves down.
E. When conveyor 1 moves to the right, conveyor 2 moves down.

32. Based on the given image, which of the conclusions must follow?

Conclusion I: Models 1 and 2 can be used to get the same result with respect to the direction of rotation.
Conclusion II: Models 2 and 3 can be used to get the same result with respect to the direction of rotation.
Conclusion III: Models 1 and 3 can be used to get the same result with respect to the direction of rotation.
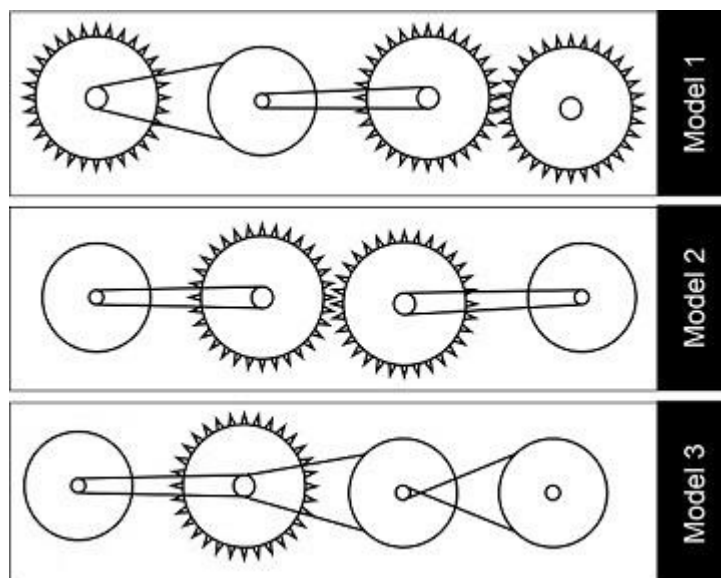
A. Only conclusion I follows
B. Only conclusion II follows
C. Only conclusion III follows
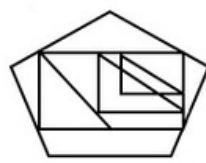D. All of the conclusions follow
E. None of the conclusions follow

33. Out of the five options given below, four are similar in a certain manner. However, one is **not** like the other four. Select the one which is different from the rest.

A. JHDB
B. OIIC
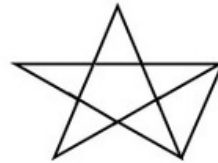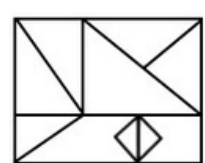C. LJFE
D. WJNA
E. FJIM

34. Out of the five options given below, four are similar in a certain manner. However, one is **not** like the other four. Select the one which is different from the rest.

A. Cold
B. Chilly
C. Frosty
D. Freezing
E. Sensitive

35. Out of the five options marked (1), (2), (3), (4) and (5), four are similar in a certain manner. However, one is **not** like the other four. Select the one which is different from the rest.
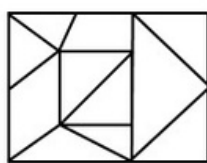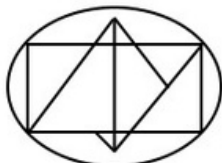
(1)   (2)   (3)   (4)   (5)

A. 1
B. 2
C. 3
D. 4
E. 5

36. Out of the five options marked (1), (2), (3), (4) and (5), four are similar in a certain manner. However, one is **not** like the other four. Select the one which is different from the rest.

(1)	(2)	(3)	(4)	(5)

A. 1
B. 2
C. 3
D. 4
E. 5

37. Which of the following options fits into the blank space given in the image below?
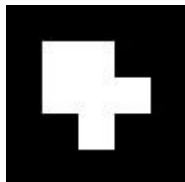
A.

B.

C.

D.

Verbal Reasoning

41. Select the option that best completes the sentence below.

Please pay the electricity bill _____ time to avoid having your electricity supply cut off.

A. inside
B. about
C. on
D. to

42. Select the option that best completes the sentence below.

Birds get very frightened when paper balls are thrown _____ them.

A. with
B.   by
C.   at
D. in

43. Select the option that best completes the sentence below.

_____ Buddhist beliefs and traditions, Gautam Buddha had been born as animals and humans in many previous births.

A. From
B. Besides
C. According to
D. In addition to

44. Select the option that best completes the sentence below.

Certain habits stay with you _____ life.

A. within
B. across
C. beyond
D. throughout

There are four questions based on the following passage, one of which is asked alongside.

Passage

Toru Dutt is considered the earliest Indian female writer in English. She travelled extensively in Europe from a young age with her family. She and her sister Aru became fascinated with Paris and French literature. In London, they came in contact with such august personages such as Sir Bartle Frere, the Governor of Bombay from 1862 to 1867, and Sir Edward Ryan, the Chief Justice of the Supreme Court, Calcutta, from 1837 to 1843.

Toru Dutt was greatly influenced in her writings by French Romantic poets like Victor Hugo and English writers like Elizabeth Browning, John Keats, Charlotte Bronte and Jane Austen. She was also intrigued by the legends and myths of India, and even learned Sanskrit. Her writings were marked by romantic melancholia and an obsession and preoccupation with death. This was partly due to her suffering and pain following the early tragic deaths of her siblings, especially her older sister Aru, with whom she was quite close.

Her chosen subjects often portrayed separation, loneliness, captivity, dejection, declining seasons and untimely death. She led an "Ivory Tower existence" and her own death came quite early, at the age of 21, in the full bloom of her talent and on the eve of the awakening of her genius.

Toru Dutt's most famous work is ***A Sheaf Gleaned in French Fields***, an anthology of poems translated from French to English. It also contained a few original poems that showcase her vast insight into French literature. She used to publish poems in the ***Bengal Magazine***, under the pseudonym "TD". But most of her powerful work was published posthumously, including the French novel ***Le Journal de Mademoiselle D'Arvers*** and the unfinished English novel ***Bianca, or, the Young Spanish Maiden***. Her work ***Ancient Ballads and Legends of Hindustan*** depicts a shrewd knowledge of Hindu mythology and an instinctive empathy with the conditions of life they represent.

An assimilation of the Occident and the Orient nourished Toru's poetic skills; in her, we find a tripartite influence of a French education, lectures at Cambridge and the study of Sanskrit literature.

45. "Toru Dutt is an unsung genius in the world of Indian English literature."

Which of the following options most supports the above statement?

A. Toru Dutt died tragically young, on the eve of the awakening of her talent.
B. Toru Dutt belonged to the illustrious Dutt family, many of who gained renown as writers.
C. Toru Dutt often wrote about separation, loneliness, dejection and other melancholic subjects in her works.

D. Toru Dutt wrote works in French and English, and also translated from Sanskrit, all in her short life of 21 years.

E. Toru Dutt travelled extensively in Europe, including cities like Paris and London, and came into contact with many august personages.

46. According to the passage, which of the following is **not** true?

A. Toru Dutt was a Romantic at heart and was influenced by Romantic writers like Hugo, Bronte and Keats.

B. Her works on Hindu mythology show Toru Dutt's instinctive sympathy with the people of her home country.

C. The tragic death of her siblings is partly responsible for the strain of melancholia we find in Toru Dutt's writings.

D. Toru Dutt was influenced by the literature of the Occident as well as the Orient, and this was reflected in her writings.

E. Toru Dutt was fascinated by European traditions and literature, and considered them above the indigenous literatures of India.

47. "Toru Dutt can be considered a cosmopolitan of the 19th century."

Which of the following options most supports the above statement?

A. Toru Dutt travelled extensively in Europe and spent considerable time in the cities of Paris and London.

B. Toru Dutt used to publish poems written in English, in the ***Bengal Magazine*** under the pseudonym "TD".

C. Toru Dutt translated the works of French Romantic poets into English for the enjoyment of the Indian public.

D. Toru Dutt was accomplished in Sanskrit literature and wrote ***Ancient Ballads and Legends of Hindustan*** based on this.

E. Toru Dutt was influenced by a French education, lectures at Cambridge, England, and the study of Sanskrit literature, and was well-versed in all three languages.

48. Which of the following is implied in the passage?

A. Toru Dutt wanted to return to Europe to further her knowledge of English and French literature.

B. Toru Dutt contemplated suicide after the untimely death of her sister Aru, with whom she was quite close.

C. Toru Dutt wanted to publish her French novel ***Le Journal de Mademoiselle D'Arvers*** and gain popularity in European literary circles.

D. Toru Dutt was conscious of the suffering of her compatriots under the British Raj and published her views under the pseudonym "TD".

E. Toru Dutt felt isolated from contemporary Indian women, especially after the death of her sister, because of her keen interest in European culture.

49. Rearrange the given sentences in a proper sequence to form a meaningful paragraph.

A. It all began during high school when Aisha moved to a hostel.
B. She was grateful that she had the support of her family to help her through this difficult time.
C. Neither Aisha nor her parents expected that her life would take such an unfortunate turn.
D. Not long after this, Aisha was diagnosed with blood cancer so she had to leave school and focus on her treatment.

A. ABDC
B. ACBD
C. CADB
D. DCAB
E. DBCA

50. Rearrange the given sentences in a proper sequence to form a meaningful paragraph.

A. According to archaeologists, Machu Picchu was an estate built for Pachacuti, the emperor of the Inca kingdom.
B. In 2007, it also got included as one of the Seven Wonders of the World.
C. Machu Picchu is a citadel situated on a 7,970 ft mountain ridge in southern Peru.
D. It was declared a UNESCO World Heritage Site in the year 1983.

A. DBAC
B. CDBA
C. CBAD
D. CADB
E. ABCD

51. Rearrange the given sentences in a proper sequence to form a meaningful paragraph.

A. From the advent of cell phones in the 1980s to this day, mobile technology has improved drastically.
B. In this era of technology and digitisation, diverse ideas are coming together to make things much easier for human beings.
C. Among the various breakthroughs in IT in the last few years, robotics and Artificial Intelligence top the list.

D. Computer, video game and television technologies have also gone through major changes in recent years.

E. With every passing year, massive advancements in technology take place, affecting our lives in many ways.

A. AEDCB

B. BEADC

C. CEDAB

D. EACDB

E. ECADB

52. Rearrange the given sentences in a proper sequence to form a meaningful paragraph.

A. Rock salt helps in the absorption of minerals in the body, aids digestion, soothes heartburn, stabilises blood pressure and cures rheumatic pain.

B. There are many benefits and uses of rock salt, but what actually is it?

C. Rock salt found in the Himalayan region is given the name Himalayan crystal salt.

D. It is good for the hair and skin as well, owing to its detoxifying, exfoliating and cleansing properties.

E. Formed from sodium chloride, rock salt (or halite) is a mineral that appears as a result of saltwater evaporation from large water bodies.

A. BEACD

B. ABCDE

C. CEBAD

D. ADBEC

E. ECBAD

QUESTIONS 53 THROUGH 56 REFER TO THE FOLLOWING INFORMATION

The following passage has blanks that have been numbered (1) to (4). From the given words, fill in the blanks with the most appropriate words.

In light of the recent happenings, the nation is again ____ (1) ____ in a debate on capital punishment. Considerable opposition to capital punishment has come from the legal scholarship quarters. It views the use of capital punishment as ____ (2) ____, as it uses hate to fight hate. People who support capital punishment, it argues, have failed to make a ____ (3) ____ between justice and revenge, thereby normalising crime. It says research studies have clearly shown that capital punishment does not act as a ____ (4) ____ to violent crimes.

53. Question 1 of 4

____(1)____

A. tuned

B. ridden
C. riveted
D. bounded
E. embroiled

54. Question 2 of 4

___(2)___

A. redolent
B. confining
C. pretentious
D. hypocritical
E. conventional

55. Question 3 of 4

___(3)___

A. distinction
B. dissimilarity
C. comparison
D. prioritisation
E. reconciliation

56. Question 4 of 4

___(4)___

A. conduit
B. deterrent
C. precedent
D. proposition
E. detachment

57. Select the word or phrase that is **incorrect** in the sentences below. Select option E if the sentences have no errors.

The incident left her with a fractured leg. With great efforts, she has started to walk again.

A. left
B. with
C. efforts
D. to
E. No error

58. Select the word or phrase that is **incorrect** in the sentence below. Select option E if the sentence has no errors.

A discount of 25% were given to customers purchasing clay lamps during the festival of lights.

A. A
B. were
C. purchasing
D. during
E. No error

59. Select the word or phrase that is **incorrect** in the sentence below. Select option E if the sentence has no errors.

The area I live in is one of the many safe places that gives freedom to women to walk around, even at night.

A. of
B. many
C. gives
D. at
E. No error

60. Select the word or phrase that is **incorrect** in the sentences below. Select option E if the sentences have no errors.

There are many harmful affects of consuming junk food regularly. Eating nutritious food is key to healthy living.

A. affects
B. regularly
C. is
D. living

E. No error

Display Screens

Main

Welcome Candidate Name.

Thank you for choosing the National Test for Programs After Twelfth.

This is a standardised test for candidates that measures skills in quantitative reasoning, logical reasoning, and verbal reasoning.
You will have **100 minutes** to complete the test.

The test will be structured as follows:

Section

	Questions
Quantitative Reasoning	40
Logical Reasoning	40
Verbal Reasoning	40

The exam time will begin on the next screen. Good luck!

Select the **Next** button to continue.

Quantitative Reasoning

There are **40 questions** in this section.

Select the **Next** button to continue.

Logical Reasoning

There are **40 questions** in this section.

Select the **Next** button to continue.

Verbal Reasoning

There are **40 questions** in this section.

Select the **Next** button to continue.

End

Dear Candidate Name.

Thank you for completing the National Test for Programs After Twelfth.

The responses of the questions will be collected, analysed and will be used to determine your score for the exam. Your score will be counted as per due weightage towards your application for your chosen course.

Good luck in your future career!

Select the **End Exam** button to complete your exam.