RIMC Entrance Exam: June 2023

MATHEMATICS

Time: 90 minutes   **Maximum marks: 200**
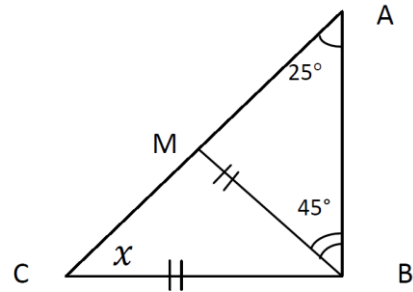
Instructions:
1. Attempt all 30 questions. Write answers separately on the answer sheet provided at the exam centre.
2. Part 'A' contains 20 questions and each question carries 'Five marks'.
3. Part 'B' contains 10 questions and each question carries 'Ten marks'.
4. Use of calculator is prohibited. Marks will be awarded for each step.
5. Take the value of π as **22/7**.
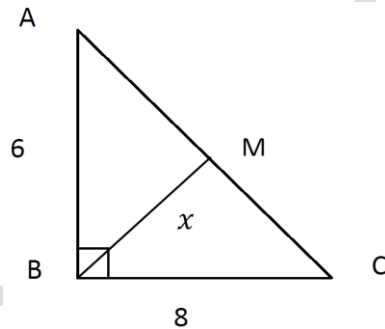6. The questions paper can be retained by the candidates post examination.

PART A   ($20 \times 5 = 100$ **Marks**)

1. Before a soccer game between North and South, there were five predictions
   a) There won't be a draw
   b) North will score against South
   c) North will win
   d) North won't lose
   e) Three goals were made, in total
   After the match, it turned out that exactly three of these predictions turned out to be true. What was the final score?

2. Find natural numbers x, y that satisfy the equation $x^2 - y^2 = 11$

3. List all the divisors of N where $N = 13^2 \times 29$

4. Find at least one solution of the following cryptogram where each distinct letter encodes a distinct digit
   I+HE+HE+HE+HE+HE+HE+HE+HE = US

5. Find at least two pairs of natural numbers which satisfy the equation $2x^3 = y^4$

6. The year 2009 has the following property: no matter how one rearranges the digits, one cannot obtain a smaller 4-digit number (we don't allow numbers to start with zeros). What is the next year that has this property?

7. An alien from a planet of TAO said "A!" when he arrived on earth on Monday. On Tuesday he exclaimed: "AY!". On Wednesday he said "AYYA!" and on Thursday he said "AYYAYAAY!" What will he say on Saturday?

8. Every seventh mathematician is also a philosopher, and every ninth philosopher is also a mathematician. Are there more philosophers or more mathematicians?

9. Three diggers can dig three pits in three hours. How many pits can six diggers dig in five hours?

10. Consider the equation
    $\frac{2}{73} = \frac{1}{60} + \frac{1}{219} + + \frac{1}{292} + \frac{1}{x}$

11. Mickey Mouse, Minnie Mouse, Goofy and Pluto are sitting on a bench. If Goofy, who is sitting in the rightmost spot, gets up and then sits down between Mickey Mouse and Minnie Mouse, then Minnie Mouse will be the left most one. In which order are they sitting?

12. The New Delhi currency exchange has the following currency rates: 11 tugriks cost 14 dinars, 22 rupees cost 21 dinars, 10 rupees cost 3 thalers and 5 krona cost 2 thalers. How many tugriks can you get for 13 kronas?

13. Valentine the Cockroach said he could run with a speed of 50 meters/min. No one believed him and they were right. Valentine got confused and thought there were 60 cm in a meter and 100 seconds in a minute. So what is Valentine's real running speed (in "normal" meter/minute).
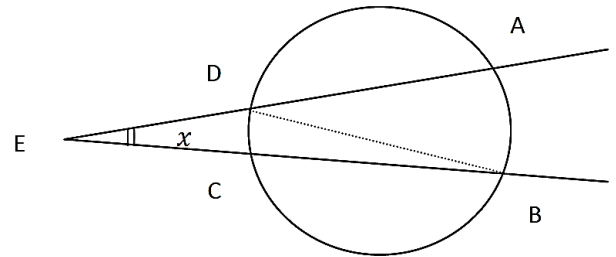
14. At the start of the year screws, nuts and bolts were equally priced at one dollar per kg. On Feb 27th the store owner decided that screws should increase in price by 50% and bolts should decrease in price by 50%. On Feb 28th the owner changed the price again. This time, the price of screws went down by 50% and the price of bolts went up by 50%. What will be the least and the most expensive product to buy in March; screws, nuts or bolts?

15. In the sequence 2, 6, 12, 20, 30········where 2 is in first place, find the number in the 6th place. Give a clear explanation of your answer.

16. Alisha has a mobile phone. Its fully charged battery gives her 6 hours of talk time and 210 hours of standby time. When Alisha boarded the train the phone was fully charged but the moment she arrived at her destination, the battery ran out. How long did Alisha travel on the train, if it is known that she was talking on the phone for exactly half of her journey time?

17. The diagonals of a parallelogram are of lengths 24 and 10 and are perpendicular to each other. Find the sides of the parallelogram and the area of the parallelogram.

18. If BC=BM, then find the value of "x" in the given figure.
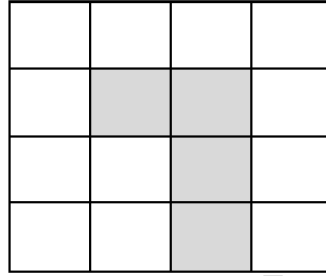

19. In the right angled triangle ABC, M is midpoint of hypotenuse AC. Find "x" (length of BM).
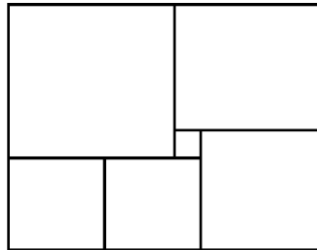

20. In the figure, Arc AB measure 120°. Arc CD measure 30°. What is "x"?($\angle E =$?)

21. The book "magic for dummies" contains the following passage "If you replace each of the distinct letters in GLOBALHELLFRY with distinct digits, and you get a prime number, then the world will suffer a terrible heat wave." Prove that such a heat wave can never occur.

22. If an octopus has an even number of legs, it always tells the truth but if it has an odd number of legs, it always lies. One day a green Octopus said to a blue one, "I have eight legs, and you have only six". "I have eight legs, and you have just seven," indignantly replied the blue Octopus.

    "The blue Octopus does really have eight legs", agreed the purple Octopus, who boasted, "And I have nine". A striped octopus joined in, saying, "None of you have eight legs, I am the only one who does!". Which of these Octopuses actually has eight legs?

23. There are knights and liars living on an island. The knights always tell the truth, while the liars always lie. A traveler met three islanders and asked each one of them. "How many of the other two islanders are knights? The first one said "None", The second one said "ONE". What did the third one say?

24. Natasha and Inna have bought two identical boxes of tea. We know that each tea bag was used to make two or three cups of tea. Natasha made 41 cups of tea from her box, and Inna managed to make 58 cups. How many tea bags were there in the box?

25. Copy this diagram onto your answer book and mark out four congruent pieces such the each piece contains exactly one shaded square.

26. 100 students live in village A, and 50 in village B, the villages are 3 Km apart. If we are trying to minimize the total distance walked by the students to their common shared school, where on the line joining AB should we build the school.

27. A shop sells 5 different cups, 4 different saucers and 3 different types of spoons. In how many different ways can I purchase two items from this shop.

28. How many different rearrangements are possible of the letter ABCA. List all of them

29. How many perfect cubes lie between $2^8 + 1$ and $2^{18} + 1$.

30. A rectangle consist of 6 squares (see picture). Find the side length of the largest square if the smallest one has side length 1.

ENGLISH

Time: 120 minutes   **Maximum marks: 125**

Instructions:

1. Read all the questions thoroughly before answering.
2. The question paper comprises of three sections.
   a) Reading Section   -   25 Marks
   b) Writing Section   -   60 Marks
   c) Grammar   -   40 Marks
3. The question paper can be retained by the candidate post exam.

SECTION 'A' READING   (25 Marks)

1. Read the passage and answer the questions that follow: (15 Marks)

   It does not sound appropriate for anybody to use the profession they belong to as the most important thing on earth to define who they are or what they are. Of course, one must be proud of one's profession, but to consider a particular profession to be head and shoulders above others is definitely preposterous. Indeed every profession is equally important; however it is the nature of time and space that attaches more importance to a particular profession. For instance, when we think of giving our children, the best education possible, teachers are very important; when we fall ill, doctors are very important; when we think of the security of the nation, people in uniform - the army, the navy, the air force and the police - are very important and when we watched the football world cup, many of us wished we were footballers.

   It is not the profession that makes us great; it is we that make our profession great. If a patient dies in a hospital due to the carelessness of a doctor, the society won't feel great about his/her profession or if a scientist starts about developing a deadly virus to destroy mankind, people of his profession might be seen by the world as viruses.

   On the contrary, when we think of Anand Kumar's Super 30 programme that has sent many underprivileged students to IITs, the profession of teaching is seen as something second to none. When we think of how Captain Vikram Batra and Captain Manoj Kumar Pandey laid down their lives for the country, we have the highest respect for those who protect the nation; cricket has almost become a religion in India because of people like Kapil Dev, Sunil Gawaskar, Sachin Tendulkar, Mahendra Singh Dhoni, etc. During the pandemic, the world put the healthcare professionals on the pedestal because they risked their lives to save millions of covid patients around the globe.

   Young boys and girls who have started to go to school must know that they should have big dreams and they must pull out all the stops to achieve their dreams. However, if they do not become responsible and productive citizens of their country after they have achieved their dreams, they cannot be considered assets of the society.

   a) How do we make our profession great? Give an example.   (03)
   b) Can any profession be considered the best? Why?   (03)
   c) What advice is being given to the young students by the passage?   (02)
   d) How do we make our profession look bad? Give an example.   (02)
   e) Find the words from the passage which mean the following: (03)
      i.   Ridiculous
      ii. Wealth
      iii. Deprived
   f) Find the phrases from the passage which mean the following: (02)
      i. To be a lot better than others
      ii. Make a lot of effort

2. Read the poem given below and answer the

questions that follow: (10 Marks)

I have taken a road
I have travelled some distance
The ride has been bumpy
Should I go ahead or not?
Should I blame myself for the road I have taken?
No, I used to love it
Though the reality is a little harsher.
Should my family be blamed for the road I have taken?
No, they thought this is
Where I would travel fastest
They say the other roads
Though appear smoother and greener
Have their own puddles.
It's done with a design.

Each road is a life
And is not a bed of roses
Believe that your road is the best
And always look forward to the best.

a) Give a suitable title to the poem. (01)
b) Why does the poet feel hesitant to go ahead? (01)
c) Why won't the poet blame his family? (01)
d) Why won't the poet blame himself? (01)
e) What is the message given by the poem? (02)
f) Name the literary devices used in the poem. Explain with examples. (02)
g) Find the words from the poem which mean the opposite of the following: (02)
i. Bumpy
ii. Disbelief

SECTION 'B' WRITING (60 Marks)

3. You are Manisha, a resident of South Delhi. Write a letter to the editor of 'The Times of India' telling him/her how every resident of Delhi could contribute to creating a healthy environment in the city in 175 words (10 Marks)

4. Write an article on "The Impact of ChatGPT on Education" in about 175 words. (10 Marks)

5. Write a paragraph each on any two of the following topics in about 75 words.

(05 x 2 =10 Marks)
   a) Child is the father of man.
   b) One swallow does not make a summer.
   c) A rotten apple spoils the barrel.

6. Look at the picture given below and write a story in about 175 words. (10 Marks)

7. Write a descriptive paragraph about your favourite video game and why you like it.

(20 Marks)

Instructions: In this question, you are required to write a descriptive paragraph about a video game you enjoy playing. Your paragraph should be at least 350-400 words long and should describe the video game in detail. Make sure to use vivid and descriptive language to bring the experience to life for the reader. You will be assessed on your ability to organize your thoughts, use appropriate vocabulary and grammar to create a clear and engaging piece of writing.

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8. Identify the parts of speech of the words underlined in the following   (1 x 4 = 4 Marks)
   a) <u>Though</u> he was angry, he remained calm.
   b) I have never met a <u>miserly</u> person like him.
   c) <u>Each</u> of you will be rewarded.
   d) <u>Each</u> boy will be given a pen.

9. Re-write the following using correct tenses.

   (1.5 x 4 = 6 Marks)
   a) I have taken breakfast two seconds ago.
   b) The Prime Minister will leave for London tomorrow.
   c) He came to my house after I had my lunch.
   d) She came to my house while I read a novel.

10. Transform the following sentences by making use of the instructions given within brackets:

    (1 x 10 = 10 Marks)
    a) Lionel Messi is the best footballer in the world. (negative sentence)
    b) We do not know where the girl lives. (simple sentence)
    c) Despite his poverty, he continued to have big dreams. (compound sentence)
    d) Mahender Singh Dhoni is admired by everyone. (interrogative sentence)
    e) The fearless soldier was able to kill five terrorists single-handedly.(complex sentence)
    f) As soon as we reached the stadium, the coach shouted at us. (negative sentence)
    g) The chef cooked the meal. (passive voice)
    h) Raju said that he had completed the assignment the previous day. (direct speech)
    i) Why did your sister not like the car? (passive voice)
    j) Meena said to Tina, "Let's go to the theatre tomorrow." (Indirect speech)

11. Write the idioms or phrases which mean the following: (1 x 5 = 5 Marks)
    a) To be excited or nervous
    b) Quickly or very fast
    c) To avoid or shy away from danger
    d) To do something to get the attention of others
    e) Of a feeling being felt by everyone.

12. Write one word each for the following expressions: (1 x 5 = 5 Marks)
    a) Study of handwriting
    b) Fear of books
    c) A place for keeping bees
    d) A person who helps a golfer
    e) A figure of speech which consists in saying something which is just the opposite of what is intended.

13. Identify the underlined grammatical particles in the following sentences.   (1 x 5 = 5 Marks)
    a) This car is mine.
    b) This is my car.
    c) The door was left open.
    d) The cake was eaten by them.
    e) What is your name?

14. The following words have two or more meanings. Give two different meanings for each of the word and frame sentences using them.

    (1 x 5 = 5 Marks)
    a) Match
    b) Watch
    c) Ring
    d) Point
    e) Bear

GENERAL KNOWLEDGE

Time: 60 minutes   **Maximum marks: 75**

Instructions:
1. There are a total of 75 questions and each question carries one mark.
2. There is no negative marking for any wrong answer.
3. Do not over write, dual answers shall not fetch any marks.
4. All questions to be answered on the question paper only.

{TICK (✓) THE CORRECT ANSWER}

1. What is the smallest bone in the human body?
   a) The Stapes
   b) Sternum
   c) Malleus
   d) Patel
2. What is the chemical formula for table salt?
   a) H_2SO_4
   b) HNO_3
   c) NaCl
   d) K_2CO_3
3. Which of the following is NOT a greenhouse gas?
   a) Carbon dioxide
   b) Methane
   c) Oxygen
   d) Water vapor
4. What is the largest organ in the human body?
   a) Brain
   b) Skin
   c) Heart
   d) Liver
5. Which gas is produced when an acid reacts with a metal?
   a) Hydrogen
   b) Oxygen
   c) Nitrogen
   d) Carbon dioxide
6. What is the name of the process by which a liquid turns into a gas at a temperature below its boiling point?
   a) Evaporation
   b) Sublimation
   c) Melting
   d) Condensation
7. What is the process by which plants release water vapour into the air called?
   a) Photosynthesis
   b) Transpiration
   c) Respiration
   d) Evaporation
8. Which planet in our solar system is known for its rings?
   a) Jupiter
   b) Saturn
   c) Neptune
   d) Uranus
9. Which of the following elements is a metal?
   a) Nitrogen
   b) Carbon
   c) Oxygen
   d) Iron
10. Which of the following is NOT a state of matter?
    a) Solid
    b) Gas
    c) Plasma
    d) Liquidation
11. Who is known as the "Father of Modern Genetics"?
    a) Charles Darwin
    b) Gregor Mendel
    c) Louis Pasteur
    d) Robert Koch
12. What is the name of the process by which living organisms break down glucose to produce energy?
    a) Photosynthesis
    b) Respiration
    c) Digestion
    d) Excretion
13. What is the acceleration due to gravity near the surface of the Earth?
    a) 9.8 meters per second square
    b) 1.62 meters per second square
    c) 3.71 meters per second square
    d) 24.79 meters per second square
14. What is the name of the largest ocean on Earth?

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a) Atlantic Ocean
b) Indian Ocean
c) Pacific Ocean
d) Arctic Ocean

15. What is the name of the process by which a solid turns directly into a gas without becoming a liquid first?
    a) Evaporation
    b) Sublimation
    c) Melting
    d) Freezing

16. Who was the first president of the United States of America?
    a) Thomas Jefferson
    b) George Washington
    c) John Adams
    d) James Madison

17. What is the capital city of Japan?
    a) Tokyo
    b) Kyoto
    c) Osaka
    d) Hiroshima

18. Which of the following is NOT a state in India?
    a) Uttarakhand
    b) Himachal Pradesh
    c) Tibet
    d) Kerala

19. Which country is known as the "Land of the Rising Sun"?
    a) Japan
    b) China
    c) South Korea
    d) North Korea

20. In which year did India gain independence from British colonial rule?
    a) 1945
    b) 1946
    c) 1948
    d) 1947

21. Which of the following is NOT one of the three branches of the United States government?
    a) Legislative
    b) Executive
    c) Judicial
    d) Military

22. Who wrote the Indian national anthem "Jana Gana Mana"?
    a) Rabindranath Tagore
    b) Bankim Chandra Chatterjee
    c) Sarojini Naidu
    d) Mahatma Gandhi

23. Which ancient civilization is known for inventing the wheel?

a) Egyptian
b) Mesopotamian
c) Greek
d) Roman

24. Which of the following is NOT one of the Seven Wonders of the Ancient World?
    a) The Great Pyramid of Giza
    b) The Hanging Gardens of Babylon
    c) The Colossus of Rhodes
    d) The Eiffel Tower

25. Who was the first prime minister of India?
    a) Jawaharlal Nehru
    b) Indira Gandhi
    c) Rajiv Gandhi
    d) Narendra Modi

26. What is the theme of International Girls in ICT Day 2023?
    a) Empower girls
    b) Digital Skills for Life
    c) STEM
    d) Science Skills for Life

27. If 3 oranges and 2 bananas cost Rs. 35, and 2 oranges and 3 bananas cost Rs. 30, what is the cost of one orange and one banana?
    a) Rs. 5
    b) Rs. 6
    c) Rs. 7
    d) Rs. 8

28. Which number comes next in the following sequence: 1, 4, 9, 16, 25,⋯ ?
    a) 36
    b) 49
    c) 64
    d) 81

29. What is the missing number in the following sequence: 2, 5, 11, 23?
    a) 47
    b) 48
    c) 49
    d) 50

30. If A is the father of B, B is the son of C, and C is the father of D, who is B to D?
    a) Brother
    b) Uncle
    c) Father
    d) Grandfather

31. Which letter comes next in the following sequence: A, E, I, M, Q,⋯?
    a) S
    b) T
    c) U
    d) V

32. What is the missing number in the following sequence: 1, 2, 6, 24, ?
    a) 96
    b) 120
    c) 144
    d) 168
33. Which of the following words is different from the others?
    a) Elephant
    b) Lion
    c) Giraffe
    d) Fish
34. Which of the following numbers is the odd one out?
    a) 9
    b) 27
    c) 64
    d) 125
35. Which of the following is a synonym for "conundrum"?
    a) Solution
    b) Riddle
    c) Confusion
    d) Question
36. What is the next shape in the following pattern?
    Square, Circle, Triangle, Square, Circle, Triangle, Square, Circle, ?
    a) Triangle
    b) Square
    c) Circle
    d) Star
37. Which tribe is playing a major role in 'Protect Hornbills Project'?
    a) Nyishi Tribe
    b) Baiga Tribe
    c) Bodo Tribe
    d) Bhil Tribe
38. If the first two statements are true, is the third statement true as well?
    All trees are plants./ All plants are green./ All trees are green.
    a) True
    b) False
39. Recently, India has opted out of which pillar of 'Indo-Pacific Economic Framework (IPEF)'?
    a) Trade
    b) Supply chain
    c) Clean Economy
    d) Fair Economy
40. Which of the following is the opposite of "brave"?
    a) Timid
    b) Bold
    c) Confident
    d) Courageous
41. If all balls are cubes, and some cubes are blue, then which of the following statements must be true?
    a) All cubes are balls.
    b) Some balls are blue.
    c) No cubes are balls
    d) Some cubes are not blue
42. If all flowers are trees and some trees are evergreen, then which of the following statements must be true?
    a) All evergreen things are trees.
    b) All trees are evergreen.
    c) Some evergreen things are not flowers.
    d) Some flowers are not evergreen.
43. Which city hosted the Shanghai Corporation Organisation (SCO) Film Festival 2023?
    a) Gandhinagar
    b) Mumbai
    c) Mysure
    d) Kochi
44. 'Copernicus Climate Change Service (C3S)' is associated with which association?
    a) ASEAN
    b) G-20
    c) EU
    d) ISA
45. Namda, is the centuries-old traditional craft, is associated with which state/UT?
    a) Arunachal Pradesh
    b) Assam
    c) Jammu and Kashmir
    d) Uttarakhand
46. If all apples are fruits and all fruits are healthy, then which of the following statements must be true?
    a) All healthy things are apples
    b) Some healthy things are not fruits.
    c) No fruits are healthy
    d) All fruits are apples
47. If all cats are black and all black things are tall, then which of the following statements must be true?
    a) Some tall things are not cats.
    b) All tall things are cats
    c) No cats are tall.
    d) All cats are tall.
48. If no books are pens and all pens are pencils, then which of the following statements must be true?
    a) No books are pencils.

b) All pencils are books.

c) Some books are not pencils.

d) Some pencils are not books.

49. When is the 'National Science Day' celebrated every year?

a) February 21

b) February 24

c) February 28

d) March 3

50. 'Satuani and Jur Sital' are the festivals celebrated in which state / UT.

a) West Bengal

b) Bihar

c) Assam

d) Karnataka

51. If all snakes are reptiles, and all reptiles are cold-blooded, then which of the following statements must be true?

a) All cold-blooded things are snakes.

b) No snakes are cold-blooded.

c) All snakes are cold-blooded.

d) All reptiles are snakes.

52. Which block has set up a task force to monitor OpenAI's ChatGPT?

a) SAARC

b) EU

c) ASEAN

d) G-20

53. If all birds can fly, and some birds are blue, then which of the following statements must be true?

a) Some blue things can fly.

b) No blue things can fly.

c) All birds are blue.

d) Some birds can't fly.

54. Which country recently received the 'GSMA Government Leadership Award 2023'?

a) USA

b) China

c) India

d) Japan

55. What is the theme of International Women's Day 2023?

a) DigitALL: Innovation and technology for gender equality

b) Gender and Financial Inclusion

c) Financial Independence of women

d) Representation: Equality of women

56. Galathea Bay National Park is situated in which state / UT?

a) Himachal Pradesh

b) Madhya Pradesh

c) Goa

d) Andaman and Nicobar Islands

57. Mohinattam dance form is most popular in which state?

a) Kerala

b) Karnataka

c) Tamil Nadu

d) Rajasthan

58. The capital city of Vietnam is

a) Hanoi

b) Ho Chi Minh City

c) Ulaanbaatar

d) Vientiane

59. Headquarters of World Meteorological organization is

a) New York

b) Paris

c) Geneva

d) Vienna

60. Every year, International Literacy Day is observed on

a) 08 march

b) 08 September

c) 09 April

d) 10 October

61. Who is the current Managing director and CEO of IMF?

a) Kristalina Georgieva

b) Horst Kohler

c) Christine Lagarde

d) Dominique Strauss Kahn

62. Who is the present Railway Minister of India?

a) Piyush Goyal

b) Ashwini Vaishnaw

c) DV Sadananda Gowda

d) Suresh Prabhu

63. Which is the largest lake in the world?

a) Lake Victoria

b) Caspian Sea

c) Lake Superior

d) Lake Baikal

64. In Lawn Tennis, who won the Argentina Open Title in 2023?

a) Rafael Nadal

b) Cameron Norrie

c) Siome Bolelli

d) Carlos Alcaraz

65. India's first Glass Igloo Restaurant is inaugurated in which state / UT?

a) Himachal Pradesh

b) Sikkim

c) Jammu and Kashmir

d) Arunachal Pradesh

66. In which state in the famous Somnath temple located
    a) Rajasthan
    b) Gujarat
    c) Madhya Pradesh
    d) Maharashtra
67. At which city is the Head office of reserve bank of India located?
    a) Delhi
    b) Mumbai
    c) Chandigarh
    d) Bangalore
68. Who among the following eminent personalities received Padma Vibhushan in the year 2023?
    a) Buddhasaheb Bhattacharjee
    b) Sandhya Mukherjee
    c) EMS Namboodiripad
    d) Zakir Hussain
69. Which article of the Indian Constitution was recently invoked by the Central Government of India to resolve the crises situation in Manipur?
    a) Article 355
    b) Article 356
    c) Article 360
    d) Article 362
70. Which space agency launched the Juice Mission to search for life on Jupiter's moons?
    a) NASA
    b) European Space Agency (ESA)
    c) Russian Space Agency (Roscosmos)
    d) China National Space Administration
71. Who won the gold medal for India in the 2023 Asian Wrestling Championships?
    a) Aman Sherawat
    b) Sushil Kumar
    c) Bajrang Punia
    d) Yogeshwar Dutt
72. The Bandipur National park is located in?
    a) Rajasthan
    b) Andhra Pradesh
    c) Karnataka
    d) Himachal Pradesh
73. 'Sedna' is the name of a_____?
    a) Planet
    b) Asteroid
    c) Satellite
    d) Missile
74. Kilowatt-hour is a unit of _____?
    a) Power
    b) Energy
    c) Time
    d) None of these
75. The paintings of Ajanta depict stories of the _____?
    a) Ramayana
    b) Mahabharta
    c) Jatakas
    d) Panchatantra

MATHEMATICS
SOLUTIONS
PART A

1. Let us take 3 situations:

   Situation 1

   There is a Draw.
   a) Definitely false
   b) Can be true.
   c) Definitely false
   d) Definitely false
   e) Definitely false.

   Reason:
   03 goals can't be equally divided into two teams.

   Outcome:
   Only one statement is true, hence a least likely option.

   Situation 2

   North wins
   a) Definitely true
   b) Definitely true
   c) Definitely true
   d) Definitely true
   e) can be true

   Reason:
   04 (four) prediction are true.

   Outcome:
   This option is least likely option.

   Situation 3

   South wins
   a) Definitely true
   b) can be true
   c) Definitely false
   d) Definitely false
   e) can be true

   Reason:
   Here (Three) 03 predictions are true.

   Outcome:
   It is the correct option.
   The likely hood of South to win by 2 - 1 exist.

2. $x^2 - y^2 = 11$
   $(x + y)(x - y) = 11$
   $(x + y)(x - y) = 1 \times 11$
   $(x - y) < (x + y)$
   So, $x - y = 1$ and $x + y = 11$
   Adding both equations, we get
   $2x = 12$
   $x = 6$
   Putting the value of x is any one of the equations, we get
   $6 - y = 1$
   $y = 5$

   Therefore, the natural numbers x and y that satisfy the equation $x^2 - y^2 = 11$ are 6 and 5 respectively.

3. $N\ 13^2 \times 29$
   Now, to find all the divisors of $13^2 \times 29$ we can use the following steps:
   N 13² x 29
   Find the prime factorisation of the number:
   13² x 29
   = 1 x 13² x 29
   To find all the divisors of the number, we had to generate all the possible combinations of the prime factors and multiply them together. 9 then together.
   = 1, 13, 29, (3 x 29), (13 x 13) (13 x 13 x 29)
   Therefore, the divisors of N = 13² x 29 are 1, 13, 29, 377, 169 and 4901

4. Let's solve the given cryptogram: -
   I + HE + HE + HE+ HE + HE + HE + TH + TH = US
   or, we can say that, I + 8 HE = US
   from the equation, we can deduce that the sum of numbers on the RHS is "US". Since 'U', 'S', 'I', 'H', 'E' are both distinct letters, they must represent distinct digits.
   let's try assigning digits i.e. H = 1 and E = 0
   $I + 8 \times 10 = I + 80$ ....(i)
   Put   H = 1 and E = 1,
   $I + 8 \times 11 = I + 88$ ....(ii)
   Put   H = 1 and E = 2,
   $I + 8 \times 12 = I + 96$ ....(iii)
   from above these equations, we can conclude that (i) and (ii) are wrong as digit is repeated. Only (iii) equation satisfied the following conditions.
   So,   H= 1 and E = 2
   Let's assume value of I i.e. 0,1,2, ... in eq. (iii)
   $(0 + 8 \times 12), (1 + 8 \times 12), (2 + 8 \times 12), (3 + 8 \times 12)$ ...
   Only value of I that is equal to 0 satisfy the given equation (iii) as there is no digit repeated.
   Therefore, the solution of the cryptogam I + 8HE = US is:
   I = 0, H = 1, E = 2, U = 9 and S = 6
   So, the solution is
   $0 + 8 \times 12 = 96$

5. $2x^3 = y^4$
   Put $x = 2$,
   $2 \times (2)^3 = 24$
   $= 2 \times 2 \times 2 \times 2$

$= 16 = y^4$

So, $y = 2$

Thus, one pair of natural number is $x = 2$ and $y = 2$

let's try another pair of natural number-

Put $x = 2^k$ in the given equation-

$2 \times (2^k)^3 = y^4$

$2 \times 2^{3k} - y^4$

$2^{3k+1} = y^4$

Put K = 0 = 0, 1, 2, 3, 4, 5, ...

$2^{3\times5+1} = y^4$

$2^{16} = y^4$

$(2^4)^4 = y^4$

$(16)^4 = y^4$

On comparing, $y = 16$

So, $2x^3 = (16)^4$

$x^3 = \frac{16 \times 16 \times 16 \times 16}{2}$

$x = 16 \times 2$

$x = 32$

therefore, two pair of natural numbers are $x = 2$ and $y = 2$ and $x = 32$ and $y = 16$

6. 2009 has property that no matter how we arrange the digits one cannot obtain the smaller number than this year.

   In next year 2010

   If we arrange 2010 i.e.

   1002 is a smaller number, same goes for 2011.

   1012 is smaller than 2011.

   So, we can see that this will follow till 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

   Now in 2020

   2002 is much smaller than 2020.

   In 2021, 1022 is smaller than 2021.

   Similarly, it applies to 2022.

   No matter how we arrange the digits, we can't find the number lesser.

7. Based on the given pattern, we can observe that:-

   On Monday: - "A!"

   On Tuesday: - "AY!"

   On Wednesday: - "AYYA!"

   On Thursday: - "AYYAYAAY!"

   following the pattern, On Friday, the alien would say

   "AYYAYAAY YAAYAYYA!"

   On Saturday, the alien would say-

   "AYYAYAAY YAAYAYYA YAAYAYYA AYYAYAAY!"

8. let's assume there are 63 individuals in total (a number divisible both 7 and 9)

   Every seventh mathematician is also a philospher, so the number of philospher = 63 / 7 = 9.

   Every ninth philospher is also a mathematician, so the number of mathematician = 63 / 9 = 7

So, we can conclude that philosphers is more than mathematicians because 9 philosphers > 7 mathematicians.

9. let the number of pits be x.

   According to the question,

   $\frac{3 \times 3}{3} = \frac{6 \times 5}{x}$

   By using the concept of

   $\frac{M_1 H_1}{W_1} = \frac{M_2 H_2}{W_2}$

   $x = 10$

   Hence, the number of pits = 10

10. $\frac{2}{73} = \frac{1}{60} + \frac{1}{219} + \frac{1}{292} + \frac{1}{x}$

    On solving it,

    $\frac{2}{73} - \frac{1}{60} - \frac{1}{219} - \frac{1}{292} = \frac{1}{x}$

    $\frac{120-73-20-15}{4380} = \frac{1}{x}$

    $\frac{120-108}{4380} = \frac{1}{x}$

    $\frac{12}{4380} = \frac{1}{x}$

    $x = 365$

11. INITIAL ARRANGEMENT –

    ____   ____   ____   GOOFY

    FINAL ARRANGEMENT –

    MINNIE MOUSE   GOOFY   MOCKEY MOUSE   PLUTO

12. NOTATIONS TO BE USED –

    TUGRIKS = Tg   Kronas = Kr

    Dinars = D

    Rupees = Rs

    Thalers = Th

    Given,

11	Tg	=	14 D	.......(i)
12	D	=	22 Rs	.......(ii)
10	Rs	=	3 Th	.......(iii)
2	Th	=	5 Kr	.......(iv)

    i. $1 \quad Kr = \frac{2}{5} Th$ [Using 4]

    $\therefore \quad 13 \quad Kr = \frac{2}{5} \times 13\,Th$

    ii. $13 \quad Kr = \frac{26}{5} Th$

    $1 \quad Th = \frac{10}{3} Rs$ [Using 3]

    $\therefore \quad 13 \quad Kr = \frac{26}{5} \times \frac{10}{3} Rs = \frac{52}{3} Rs$

    iii. $1 \quad Rs = \frac{21}{22} D$ [Using 2]

    $\therefore \quad 13 \quad Kr = \frac{26}{5} Th = \frac{52}{3} Rs = \frac{52}{3} \times \frac{21}{22} D$

    $= \frac{182}{11} D$

    iv. $1 \quad D = \frac{11}{14} Tg$

    $\therefore \quad 13 \quad Kr = \frac{26}{5} Th = \frac{52}{3} Rs = \frac{182}{11} D$

    $= \frac{182}{11} \times \frac{11}{14} Tg = 13\,Tg$

    $\Rightarrow \quad 13 \quad Kr = 13\,Tg$

13

13. Valentine's speed (as per him) = $\frac{50\,m}{min}$

[As he thought 1m = 60 cm & 1 mm = 100 sec] = $\frac{50 \times 60\,cm}{100\,sec}$

$$= \frac{30\,cm}{sec}$$

To convert $\frac{30\,cm}{sec}$ to $\frac{m}{min}$ $\Rightarrow \frac{\frac{30}{100}}{\frac{1}{60}}$

$$= \frac{30 \times 60}{100}$$

= 18 m/min

14.

	Screws	Nuts	Bolts
Initial Price ($)	1	1	1
27th Feb ($)	$1 + \frac{50}{100} \times 1$ = 15	No Change	$1 - \frac{50}{100} \times 1$ = 0.5
28th Feb ($)	$15 - \frac{50}{100} \times 15$ = 0.75	No Change	$0.5 + \frac{50}{100} \times 0.5$ = 0.75
Final Price (March - $)	0.75	1	0.75

MOST   EXPENSIVE   =   NUTS
LEAST   EXPENSIVE   =   SCREWS/BOLTS

15. GIVEN   SEQUENCE $\rightarrow$ 2, 6, 12, 20, 30, ___
LOGIC $\rightarrow$ 2,   6,   12,   20,   30, ___
          + 4   + 6   + 8   + 10

The logic applied here is that we are consecutively adding 4, 6, 8 and 10 to obtain the next number. Thus, the next number to be added is 12.
The required number = 30 + 12 = 42.

16. Let 2t be the total time taken by the train.
Alisha spent some amount of time talking on standby.
She used one full charge of cell phone.
Now we can have an equation.
∴ rate × time = count of battery charged
(When she was talking) $= \frac{1}{6} \times t$ $= \frac{1}{6} \times t$
(When she was stand by) $= \frac{1}{210} \times t$ $= \frac{t}{6}$
Total time taken was 2t.
Now,
$$= \frac{1}{6} + \frac{t}{210} = 1$$
$$= \frac{35t + t}{210} = 1$$
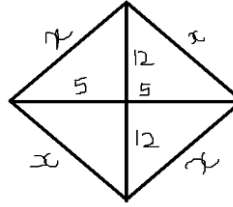$$= \frac{(35+1)t}{210} = 1$$
$$t = \frac{210}{36}$$
$$t = \frac{35}{6} = 5 = \frac{5}{6} \text{ or } 5\,hr + \frac{5}{6} \times 60$$
$$t = 5\,hr + 50\,min$$

17. When the diagonals of a parallelogram are perpendicular to each other, it is a rhombus sides of a rhombus are equal.
Given: -
Let the side of the rhombus be x

Area of the rhombus
$= \frac{1}{2} \times$ Diagonal (1) $\times$ Diagonal (2)
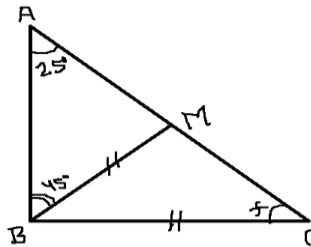$$= \frac{1}{2} \times 24 \times 10$$
$$= 120$$
Side of the rhombus
$= \sqrt{12^2 + 5^2}$ [Pythagorus Theorem]
$$= \sqrt{144 + 25}$$
$$= \sqrt{169}$$
$$= 13$$

18.

∠AMB = 180⁰ - ∠ BAM - ∠ ABM   [Sum of the angles of a triangle is 180⁰]
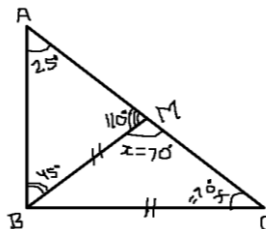$$= 180 - 25 - 45$$
$$= 110^0$$
If   BM = BC   [given]
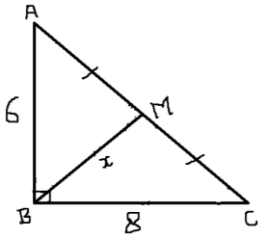Then,   ∠ BCX = ∠ BMC = x [Angles opposite to equal sides are equal]
∴   ∠ BMC = $180^0 - ∠AMB$ [Sum of straight angles is 180⁰]
$$= 180 - 110$$
$$= 70^0$$

19. Given:-

$AC^2 = AB^2 + BC^2$
$AC^2 = 6^2 + 8^2$
$AC^2 = 36 + 64$
$AC^2 = 100$
$AC = \sqrt{100}$
$AC = 10$
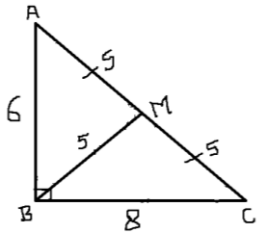$AM = MC = \frac{1}{2}AC$ [As M is the midpoint of hypotenuse AC]
$AM = MC = \frac{1}{2} \times 10 = 5$

Property → Midpoint of the hypotenuse is also the circumcentre of the right triangle. So, M is the circumcentre of the right triangle ABC.
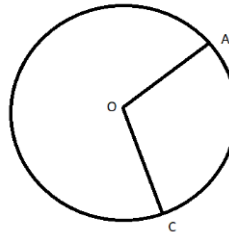Hence, AM, CM & BM become the radii of the circumcircle (as circumcircle passes through the vertices of the right triangle)
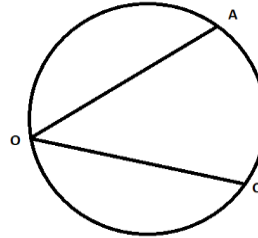So,   AM = BM = CM
∴   BM = x = 5

20. Note: Remember this property

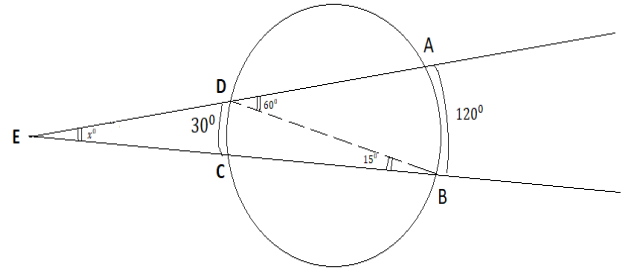
If arc AC is 120^0, then ∠AOC is 120^0 if o is at center

If o is at circumference. And arc AC is 120^0, then
∠AOC = $\frac{1}{2} \times 120^0 = 60^0$
Using this property.

Now
$15 + x^0 = 60$
$x^0 = 60 - 15$
$x^0 = 45$

21. GIVEN WORD → GLOBAL HELLFRY
    DISTINCT LETTERS → G L O B A H E F R Y
    NUMBERS ASSIGNED → 0 1 2 3 4 5 6 7 8 9
    TOTAL SUM = SUM OF ALL NUMBERS ASSIGNED + REPEATED LETTER
    $= 0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + L + L + L$
    $= 45 + 3L$
    $= 3(15 + L)$, which is clearly not
    a prime number as it is divisible by 3.

22. a) Green Octopus – Green Octopus does not have 8 legs as the blue Octopus has declared that it has 7 legs.

    b) Blue Octopus – Blue Octopus does not have 8 legs as the purple Octopus has said that the Blue Octopus have 8 legs, but it has also said that it itself has 9 legs. [And we know that any octopus with odd no of legs always lies].

    c) Purple Octopus – Purple Octopus itself negates that it does not have 8 legs. It has 9 legs and an octopus with 9 legs always lies.

    d) Striped Octopus – It is the only Octopus that has 8 legs.

23. Let's analyze the statements made by each islander:

    a) The first islander said, "None."
       If the first islander is a knight, they always tell the truth. Therefore, if they were a knight, it would mean that both the second and third islanders are liars, and none of them are knights. However, this statement contradicts the fact that at least one of them is a knight (since there are knights on the island). Therefore, we can conclude that the first islander is a liar.

    b) The second islander said, "ONE."
       If the second islander is a knight, they always tell the truth. Therefore, if they were a knight, it would mean that one of the other two islanders is a knight. Since we already established that the first islander is a liar, the second islander must be a liar as well, as their statement contradicts the fact that both of the other two islanders are liars. Thus, we conclude that the second islander is a liar.
       Now, let's determine what the third islander would say:

    c) The third islander is left, and they are either a knight or a liar.
       Since the first and second islanders are both liars, the third islander cannot trust their

statements. Therefore, regardless of whether the third islander is a knight or a liar, they would also say "ONE" to align with the second islander's statement. This is because if the third Islander were a knight, they would tell the truth and confirm that only one of the other two islanders is a knight. If the third islander were a liar, they would lie and also say "ONE" to match the second islander's statement.

Hence, the third islander would say "ONE" as well.

24. Given:-
    No of tea bags Natasha = No of tea bags Inna has
    Natasha made 41 cups of tea i.e.
    Lesser no. of cups and we know that each tea bag can make 2 or 3 cups of tea.
    Therefore, no of tea bags will be between the range of $\frac{41}{3} = 13$ and $\frac{41}{2} = 20$
    For Natasha,
    Let us assume,
    x = Two cups of tea
    T = Total cups of tea
    For Natasha,
    $$2x + 3(T - x) = 41$$
    $$2x + 3T - 3x = 41$$
    $$3T - x = 41 \qquad \text{....}(i)$$
    $$T = \frac{41+x}{3} \qquad \text{....}(iii)$$
    For Inna,
    y = Two cups of Tea
    T = Total cups of Tea
    $$2y + (T - y)3 = 58$$
    $$2y + 3T - 3y = 58$$
    $$3T - y = 58 \qquad \text{....}(ii)$$
    $$T = \frac{58+y}{3} \qquad \text{....}(iv)$$
    Subtracting (ii) from (i),
    $$3T - x = 41$$
    $$\underline{- + 3T - y = 58}$$
    $$y - x = -17$$
    $$\Rightarrow \qquad x = y + 17$$
    Putting different values of x and y,

x	17	18	19
y	0	1	2

    For $x = 19$
    & $y = 2$,
    Both (iii) and (iv) satisfy and are equal.
    Therefore,
    $$T = \frac{41+x}{3} \qquad [from\ (iii)]$$
    $$= \frac{41+19}{3}$$
    $$= \frac{60}{3}$$
    $$= 20$$
    (or)

$$T = \frac{58+y}{3} \qquad [from\ (iv)]$$
$$= \frac{58+2}{3}$$
$$= \frac{60}{3}$$
$$= 20$$

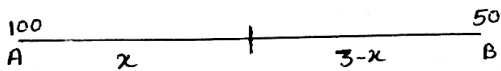Therefore, the no. of ten bags in the bag were 20.

25.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

i. Congruent Pieces ⇒ (1,2,3,7); (4, 8, 12, 11); (8,12,16,15); (5,6,9,13)
ii. Congruent Pieces ⇒ (2,6); (3,7); (11,12); (15,16)
[As it is not clear in the question that we have to pick 4 congruent Pieces together]
So, both (i) and (ii) can be the answer.

26.

Let us imagine that the school should be constructed from x distance from village A.
Therefore, Distance of school from village B = 3 - x
Thus,
$100x + 50(3-x)$. should be minimum.
$= 100x + 150 - 50x$ should be minimum
$= 50x + 150$ should be minimum
∴ For $x = 0$; this sum is minimum.
Therefore, School should be constructed in village A.

27. No of different cups = 5
No of different sauces = 4
No of different spoon = 3
Now different ways to buy cups / sauces / spoons: -

$5C_1 \times 4C_1$	+	$4C_1 \times 3C_1$	+	$5C_1 \times 3C_1$
For cups and spoons		for cups and sauces		for spoons and cups
20	+	12	+	15

∴ 20 + 12 + 15 = 47

28. No. of different arrangements of the letter ABCA
$= \frac{4!}{2!} = \frac{4 \times 3 \times 2 \times 1}{2 \times 1} = 12$
All the arrangements are:-
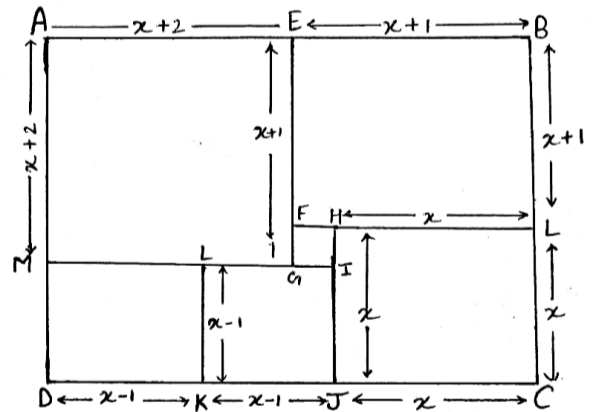ABCA, AABC, AACB, ABAC, ACAB, ACBA, BCAA, BACA, BAAC, CBAA, CABA, CAAB.

29. $2^8 + 1 = 256 + 1 = 257$
$2^{18} + 1 = (2^6)^3 + 1 = (64)^3 + 1$
7^3 is the first cube after 257.
Therefore; no of cubes between $2^{18} + 1$ and $2^{18} + 1$
$= 64 - 7 = 57$

30.

Let HL = x
∴ CL = JC = HL = x
⇒ FL = FH + HL
$= 1 + x$
∴ FE = EB = BL = $1 + x$
EG = EF + FG = $x + 1 + 1 = x + 2$
∴ AE = AM = EG = $x + 2$
Therefore, the side of the largest square is $x + 2$.
Now,
AB = CD
$x + 2 + x + 1 = x + x - 1 + x - 1$
$2x + 3 = 3x - 2$
$3 + 2 = 3x - 2x$
$5 = x$
⇒ $x = 5$
Therefore, the side of the largest square is $x + 2 = 5 + 2 = 7$.

1.

a) According to the passage, we make our profession great by our actions and the impact we have within our profession. An example provided is the Super 30 program run by Anand Kumar, which sends underprivileged students to prestigious institutions like IITs, highlighting the significance and impact of teaching as a profession.

b) No, the passage argues that no profession can be considered the best in an absolute sense. It states that every profession is equally important and the importance attached to a particular profession depends on the context, time and space. Different professions hold different levels of importance based on specific needs and circumstances.

c) The advice given to young students in the passage is that they should have big dreams and work hard to achieve them. However, it also emphasizes the importance of being responsible and productive citizens of their country once they have achieved their dreams.

d) According to the passage, we make our profession look bad by our actions that have negative consequences. An example provided is when a patient dies due to the carelessness of any doctor, it tarnishes the perception of the entire medical profession.

e) Words from the passage:
   i. Ridiculous: Preposterous
   ii. Wealth: Asset
   iii. Deprived: Underprivileged

f) Phrases from the passage:
   i. To be a lot better than others: Head and shoulders above others
   ii. Make a lot of effort: Pull out all the stops

2.

a) A possible suitable title for the poem could be "The Road Taken."

b) The poet feels hesitant to go ahead because the ride has been bumpy and the reality of the road they have taken is harsher than they initially expected.

c) The poet won't blame his family because they believed that the road they took would lead to faster travel. They thought it was the best option, even though other roads may appear smoother and greener but still have their own challenges.

d) The poet won't blame himself because they used to love the road they took. Although the reality may be harsh, the poet doesn't see it as a reason to blame themselves for the choice they made.

e) The message of the poem is to believe that one's chosen path in life is the best and one must always look forward to the best. Each road represents a different life and while it may not be easy or perfect, one should have faith in their own journey and strive for the best.

f) Literary devices used in the poem:
   i. **Metaphor**: The poem uses the metaphor of a road to represent life's journey. Each road symbolizes a different life and its challenges.
   ii. **Personification**: The line "Though the reality is a little harsher" personifies reality by attributing it with the quality of being harsh.
   iii. **Repetition**: The repetition of the phrase "Should I..." creates a rhetorical question that emphasizes the poet's internal struggle and contemplation.
   iv. **Enjambment**: Enjambment refers to the continuation of a sentence or thought from one line to the next without a pause or punctuation mark. Example of enjambment in the poem: "Should I go ahead or not? Should I blame myself for the road I have taken?" In these lines, the thought is carried over from the first line to the second without a pause, creating a sense of flow and connection between the two lines.

g) Words from the poem meaning the opposite:
   i. Bumpy: Smooth
   ii. Disbelief: Design

3. To,
   The Editor,
   The Times of India,
   New Delhi.
   PIN – 123456.

   Subject: Creating a Healthy Environment in Delhi: Every Resident's Contribution

   Dear Editor,

   I hope this letter finds you in good health and high spirits. As a concerned resident of South Delhi, I would like to draw attention to the pressing need for every citizen to contribute towards creating a healthy environment in our beloved city. The challenges of pollution and climate change becoming increasingly severe make it imperative that we all take proactive steps to safeguard the well-being of our environment some recommendations are in the subsequent lines:

   Firstly, adopting sustainable practices in our daily lives can make a significant difference. Encouraging the use of public transportation, carpooling and cycling not only reduces air pollution but also eases traffic congestion. Additionally, minimizing the use of plastic and embracing reusable alternatives can help combat the plastic waste crisis.

   Secondly, tree plantation drives and community gardening initiatives can enhance the green cover in our city. Every resident can contribute by planting and nurturing trees in their surroundings or actively participating in local gardening projects. This will improve air quality, provide shade and create a serene environment for all.

   Furthermore, waste management is another crucial aspect. Every resident should strive to segregate and recycle waste effectively. Promoting composting at individual and community levels can minimize the burden on landfills and promote a circular economy.

   Lastly, raising awareness about the importance of environmental conservation through campaigns, workshops and educational programs is vital. Residents can organize and participate in such initiatives to educate and inspire others.

   By embracing these practices collectively, we can pave the way for a cleaner, greener and healthier Delhi. I recommend that we all join hands and take responsibility for the environment we live in, ensuring a sustainable future for generations to come.

   Yours sincerely,
   Manisha
   New Delhi.
   PIN – 123456.

4. The Impact of ChatGPT on Education

   Artificial Intelligence has revolutionized various sectors and education is no exception. One significant development in the field of AI is ChatGPT, a language model that has the potential to transform the way we learn and teach. Its advanced natural language processing capabilities, ChatGPT opens up a world of possibilities in education.

   One of the key impacts of ChatGPT on education is personalized learning. Its ability to understand and respond to individual queries, ChatGPT can provide tailored assistance to students. It acts as a virtual tutor, offering explanations, answering questions and providing additional resources based on each student's unique needs. This personalized approach enhances student engagement and promotes self-paced learning.

   The ChatGPT enables collaborative learning experiences. Students can interact with the AI model to discuss ideas, work on projects and engage in simulations. This fosters a dynamic learning environment, encouraging teamwork, critical thinking and problem-solving skills.

   It is not only the students but also the teachers who can benefit from ChatGPT. It can assist educators in creating interactive lesson plans, generating quizzes and offering real-time feedback. Additionally, ChatGPT can automate administrative tasks, allowing teachers to focus more on individual student support and instruction.

   However, it is important to note that while ChatGPT has immense potential, it is not a substitute for human teachers. The role of educators remains crucial in providing guidance, mentorship and emotional support to students.

The impact of ChatGPT on education is transformative. It empowers students with personalized learning experiences, enhances collaboration and supports teachers in their instructional practices. Embracing AI technologies like ChatGPT can revolutionize education, making it more accessible, engaging and effective in preparing students for the future. It is essential to strike a balance between AI and human interaction to create a holistic learning environment that nurtures both knowledge and empathy.

5.
   b) Child is the father of man: The phrase "Child is the father of man" implies that the characteristics, qualities, and experiences of a person during their childhood have a significant impact on their adult life. It suggests that the foundation of an individual's personality and behavior is laid in formative years of a child. The innocence, curiosity and eagerness to learn exhibited by children shape their development influence their future actions and choices. Thus, understanding and nurturing the child's growth their well-being is crucial for building a strong foundation which can prepare them for their adulthood.

   c) One swallow does not make a summer: This proverbial expression implies that a single event or instance does not necessarily indicate a larger trend or outcome. Just as the sighting of a single swallow does not signify the arrival of summer, a solitary occurrence cannot represent the entirety of a situation. It emphasizes the need to consider multiple factors and observe patterns over time to draw meaningful conclusions. This phrase reminds us to avoid hasty generalizations and to approach situations with a comprehensive and holistic perspective.

   d) A rotten apple spoils the barrel: This proverbial saying highlights the negative influence that one bad or corrupt element can have on an entire group or community. Just as a rotten apple in a barrel can quickly spread its decay and ruin the other apples. Similarly a single negative or disruptive individual can tarnish the reputation and harmony of a larger collective. It emphasizes the importance of being cautious and vigilant in maintaining a positive and healthy environment, as the actions of a few can significantly impact the overall integrity and well-being of a group.

6. Once upon a time, in a big town nestled amidst rolling green hills, a group of children gathered on an open patch of land. Their laughter filled the air as they prepared for an exhilarating game of football. The sun beamed down, casting long shadows as the youngsters kicked the ball, their energy contagious.

Among the children was John, a ten-year-old boy with a passion for the game. He had a natural talent for dribbling and scoring goals and his infectious enthusiasm inspired his friends to give their best. They formed two teams, donning matched jerseys.

As the game began, the children showcased their skills, weaving between one another with nimble footwork. Each pass and shot was met with cheers and applause. The game transcended language and other differences uniting the children in a shared love for football.

Time seemed to stand still as the match intensified. The children sprinted across the makeshift field, their determination shining in their eyes. Their laughter echoed through the play held as the ball soared through the air, dodging obstacles and narrowly missing the goal.

As the children game progressed discovered the joy of teamwork and the value of perseverance. They learned that success was not solely about winning but about the bonds they forged and the memories they created. They cheered for one another, embracing both victory and defeat with grace.

As the sun began to set, casting a golden hue over the town, the game came to an end. The children, breathless and exhilarated, gathered in a circle, reliving the highlights of the match. They realized that their shared passion for football had united them, transcending differences of age, background and status.

The children were excited and they made a promise to meet again, to continue playing and nurturing their love for the beautiful game. The not so lively patch of land became a sanctuary for their dreams and aspirations. The bonds they formed through football would forever hold a special place in their hearts.

And so, in that town, the legacy of the children's football games lived on, inspiring generations to come to embrace the power of play, friendship and the pursuit of shared dreams.

7. One of my all-time favorite video games is "The Legend of Zelda: Breath of the Wild." From the moment I first stepped into the vast and immersive world of Hyrule, I was captivated by

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its beauty and endless possibilities. The game opens with a breathtaking view of rolling hills, sprawling forests and distant mountains, each beckoning to be explored. The attention to detail in the game's graphics is astounding, with lush landscapes, cascading waterfalls and vibrant wildlife that make the world come alive.

What sets "Breath of the Wild" apart is its sense of freedom and exploration. As the protagonist, I am free to roam the expansive map, uncovering hidden treasures, solving puzzles and engaging in thrilling battles with enemies. The game rewards curiosity, as every nook and cranny holds the potential for discovery. Climbing towering mountains, gliding over vast canyons and traversing treacherous terrain are all part of the exhilarating journey.

One of the aspects that I particularly enjoy is the game's emphasis on survival and resource management. It is a must to hunt for food, gather materials. The weapons and armor are available to overcome the challenges that lie ahead. The dynamic weather system adds another layer of immersion with rain making surfaces slippery and thunderstorms posing a danger. It's a constant balancing act of planning ahead, making strategic decisions and adapting to the ever-changing environment.

The game's storyline is rich and engaging, filled with memorable characters, ancient legends and a sense of impending danger. I find myself deeply invested in the quests and missions, eager to uncover the truth behind the calamity that has befallen Hyrule. The game seamlessly weaves together moments of tranquility and intensity, allowing me to experience a wide range of emotions as I journey through the captivating narrative.

In addition to its stunning visuals and immersive gameplay, the music in "Breath of the Wild" deserves special mention. The beautifully composed melodies complement the game's atmosphere, evoking a sense of wonder, triumph as per the situation. The haunting piano notes that accompany my exploration of the ruined kingdom or the stirring orchestral pieces during epic battles add an extra layer of immersion, making every moment unforgettable.

Overall, "The Legend of Zelda: Breath of the Wild" is a masterpiece that combines stunning visuals, immersive gameplay and a captivating storyline. Its open-world exploration, survival mechanics and attention to detail make every play through a unique and unforgettable experience. It has become more than just a video game to me; it's a journey into a world where adventure awaits at every turn and where the power of exploration and discovery knows no bounds.

SECTION 'C' GRAMMAR

8.
   a) Though he was angry, he remained calm.
      Underlined word: Though
      Part of speech: Conjunction
   b) I have never met a miserly person like him.
      Underlined word: Miserly
      Part of speech: Adjective
   c) Each of you will be rewarded.
      Underlined word: Each
      Part of speech: Pronoun
   d) Each boy will be given a pen.
      Underlined word: Each
      Part of speech: Adjective

9.
   a) I took breakfast two seconds ago.
   b) The Prime Minister leaves for London tomorrow.
   c) He came to my house after I had had my lunch.
   d) She came to my house while I was reading a novel.

10.
   a) No other footballer in the world is as good as Lionel Messi.
   b) We do not know the address of the girl.
   c) He was poor yet/but he continued to have big dreams.
   d) Who does not admire Mahendra Singh Dhoni?
   e) The soldier who was fearless, was able to kill five terrorists single-handedly.
   f) No sooner did we reach the stadium then the coach shouted at us.
   g) The meal was cooked by the chef. (passive voice)
   h) Raju said, "I completed the assignment yesterday."

i) Why was the car not liked by your sister? (passive voice)

j) Meena suggested to Tina that they go to the theatre the next day. (Indirect speech)

11.

a) To be excited or nervous: "On pins and needles" or "butterflies in the stomach"

b) Quickly or very fast: "In the blink of an eye" or "at lightning speed"

c) To avoid or shy away from danger: "To play it safe" or "to steer clear of"

d) To do something to get the attention of others: "To make a spectacle" or "to grab the limelight"

e) Of a feeling being felt by everyone: "In the air" or "to be palpable"

12.

a) Study of handwriting: Graphology

b) Fear of books: Bibliophobia

c) A place for keeping bees: Apiary

d) A person who helps a golfer: Caddie

e) A figure of speech which consists in saying something which is just the opposite of what is intended: Sarcasm/Irony

13.

a) This car is mine.
Underlined grammatical particle: This (Demonstrative Adjective)

b) This is my car.
Underlined grammatical particle: my (Possessive Adjective)

c) The door was left open.
Underlined grammatical particle: left (Verb)

d) The cake was eaten by them.
Underlined grammatical particle: them (Personal Pronoun)

e) What is your name?
Underlined grammatical particle: What (Interrogative Pronoun)

14.

a) Match:
   i. Meaning: A small stick with a combustible tip used for lighting fires.
   Example sentence: Can you pass me a match? I need to light the candle.
   ii. Meaning: A contest or competition.
   Example sentence: The football match between the two teams was intense and ended in a draw.

b) Watch:
   i. Meaning: A timepiece worn on the wrist or carried in a pocket.
   Example sentence: She glanced at her watch to check the time before heading to the meeting.
   ii. Meaning: To observe or keep under surveillance.
   Example sentence: The detective decided to watch the suspect's movements closely.

c) Ring:
   i. Meaning: A circular band worn as an ornament on the finger.
   Example sentence: She received a beautiful diamond ring on her engagement.
   ii. Meaning: To make a phone call.
   Example sentence: I will ring you later to discuss the details of the event.

d) Point:
   i. Meaning: A sharp or tapered end of an object.
   Example sentence: Be careful with that pencil; the point is sharp.
   ii. Meaning: A particular detail, aspect, or argument in a discussion.
   Example sentence: She raised an interesting point during the debate.

e) Bear:
   i. Meaning: A large mammal with a heavy body, thick fur, and sharp claws.
   Example sentence: We spotted a bear in the woods while hiking.
   ii. Meaning: To endure or tolerate.
   Example sentence: Despite the difficulties, she managed to bear the weight of her responsibilities.

1. a) The Stapes
    Explanation: The smallest bone in the human body is called the stapes or stirrup bone. It is one of the three tiny bones located in the middle ear, collectively known as the Ossicles. The stapes bone measures approximately 2.8 millimeters (0.11 inches) in length. The stapes bone plays a crucial role in transmitting sound vibrations from the eardrum to the inner ear.

2. c) NaCl
    Explanation: The chemical formula for table salt or common salt is NaCl. It represents a compound composed of sodium (Na) and chloride (Cl) ions. In the solid state, sodium chloride forms a crystalline structure where each sodium ion is surrounded by six chloride ions and each chloride ion is surrounded by six sodium ions. This ionic compound is highly soluble in water.

3. c) Oxygen
    Explanation: Among the given options, oxygen (O_2) is NOT considered a greenhouse gas. Oxygen is a component of the Earth's atmosphere, and while it is essential for supporting life, it does not possess the properties to trap and radiate heat like greenhouse gases do. The primary greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and various fluorinated gases. These gases can contribute to the greenhouse effect, which is the process of trapping heat in the Earth's atmosphere and influencing the planet's climate.

4. b) Skin
    Explanation: The largest organ in the human body is the skin. The skin is a complex organ that covers the entire external surface of the body and acts as a protective barrier against the environment. It serves several important functions, including regulating body temperature, preventing dehydration, providing sensory information and serving as a defense against pathogens. The skin is composed of three layers: the epidermis, the dermis and the hypodermis (subcutaneous tissue). On an average, the skin accounts for about 15% of the total body weight.

5. a) Hydrogen
    Explanation: When an acid reacts with a metal, the gas produced is hydrogen (H_2). So, the correct option is Hydrogen.

6. a) Evaporation
    Explanation: The process by which a liquid turns into a gas at a temperature below its boiling point is called evaporation. During evaporation, the liquid molecules gain enough energy to escape the surface and enter the gas phase. This process commonly occurs at the surface of liquids exposed to the atmosphere. Unlike boiling, which occurs at the boiling point of a liquid throughout the entire volume, evaporation can take place at any temperature as long as the liquid's molecules have sufficient energy to transition into the gas phase.

7. b) Transpiration
    Explanation: The process by which plants release water vapor into the air is called transpiration. Transpiration is the loss of water vapor through the stomata, which are tiny openings on the surface of leaves. It is an essential process for plants as it helps in the uptake of water and nutrients from the soil, cooling the plant and maintaining turgidity (rigidity) in cells. Transpiration is influenced by various factors such as temperature, humidity, light intensity and wind speed.

8. b) Saturn
    Explanation: The planet in our solar system known for its rings is Saturn. Saturn is famous for its prominent and extensive ring system, which consists of countless individual rings made up of ice particles, dust and rock fragments. These rings encircle Saturn's equator and are visible from Earth through a telescope. The rings of Saturn are one of the most striking and distinctive features of the planet, making it a subject of great fascination and study by astronomers.

9. d) Iron
    Explanation: Iron is the element among the given options that is a metal. Iron is a chemical element with the symbol Fe and atomic number 26. It is a lustrous, silvery-gray metal and is one of the most abundant elements on Earth. Iron is known for its strength, malleability and ability to conduct electricity. It is widely used in various industries, including construction, manufacturing and transportation.

10. d) Liquidation
    Explanation: Liquidation is not a state of matter. The correct term for the state of matter that refers to a liquid is "liquid" itself, not "liquidation." The other options mentioned are valid states of matter: (a) Solid, (b) Gas and (c) Plasma.

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11. b) Gregor Mendel

Explanation: The person known as the "Father of Modern Genetics" is Gregor Mendel. Mendel was an Austrian scientist and Augustinian friar who conducted groundbreaking experiments with pea plants in the 19th century. Through his careful observations and meticulous breeding experiments, Mendel established the fundamental principles of inheritance and laid the foundation for modern genetics. His work on the inheritance of traits and the concepts of dominant and recessive genes became the basis for understanding how the traits are passed down from generation to generation.

12. b) Respiration

Explanation: The process by which living organisms break down glucose to produce energy is called respiration. Respiration is the metabolic process through which cells obtain energy by converting glucose and oxygen into carbon dioxide, water and ATP (adenosine triphosphate). It occurs in the cells of all living organisms, including plants and animals. It serves as a vital process for sustaining life. During respiration, the energy stored in glucose molecules is gradually released and utilized by the organism for various biological activities.

13. a) 9.8 meters per second square

Explanation: The acceleration due to gravity near the surface of the Earth is approximately 9.8 meters per second squared 9.8. This value represents the rate at which an object in free fall accelerates towards the Earth under the influence of gravity. It is denoted by the symbol "g" and is considered a constant value near the Earth's surface. However, it should be noted that this value can vary slightly depending on location and elevation, but 9.8 m/s² is a commonly used approximation.

14. c) Pacific Ocean

Explanation: The largest ocean on Earth is the Pacific Ocean. The Pacific Ocean is located between the Eastern Hemisphere and the Western Hemisphere, stretching from the Arctic in the north to the Southern Ocean in the south. It covers an area of approximately 63 million square miles (165 million square kilometers), making it the largest and deepest ocean on the planet. The Pacific Ocean is known for its vastness and is home to numerous islands, including the Hawaiian Islands, the Galapagos Islands, and many others.

15. b) Sublimation

Explanation: The name of the process by which a solid turns directly into a gas without becoming a liquid first is sublimation. Sublimation occurs when a solid substance bypasses the liquid phase and changes directly into a gas upon exposure to specific conditions, such as low pressure or temperature. During sublimation, the solid particles gain enough energy to transition directly into a gaseous state, without passing through the intermediate liquid phase. Examples of substances that undergo sublimation include dry ice (solid carbon dioxide) and mothballs (naphthalene).

16. b) George Washington

Explanation: The first president of the United States of America was George Washington. He served as the President from 1789 to 1797 and played a significant role in the American Revolution and was a highly respected military leader before assuming the presidency. He is often referred to as the "Father of His Country" and is recognized for his instrumental role in establishing the presidency and shaping the early government of the United States.

17. a) Tokyo

Explanation: The capital city of Japan is Tokyo. Tokyo is not only the capital but also the largest city in Japan. It is located on the eastern coast of the island of Honshu and is a major cultural, economic, and political center of the country. Tokyo is known for its modern skyline, bustling streets, historical sites, and vibrant pop culture. It serves as the seat of the Japanese government and is home to the Imperial Palace, the official residence of the Emperor of Japan.

18. c) Tibet

Explanation: Tibet is not a state in India. Tibet is an autonomous region located in the southwestern part of China and is not officially recognized as a state within the Indian territory. However, it shares a border with several Indian states in the Himalayan region, such as Uttarakhand and Himachal Pradesh, which are recognized states in India.

19. a) Japan

Explanation: The country known as the "Land of the Rising Sun" is Japan. Japan is often referred to by this nickname because it is located to the east of the Asian continent, and from the perspective of many countries, the sun rises over Japan. The name "Land of the Rising Sun" symbolizes the country's position as the easternmost major nation in Asia.

20. d) 1947

Explanation: India gained independence from British colonial rule in the year 1947. On

August 15, 1947, India became an independent nation, marking the end of British rule that had lasted for nearly 200 years. This day is celebrated annually in India as Independence Day and is a national holiday.

21. d) Military

Explanation: The branch that is not one of the three branches of the United States government is Military. The three branches of the United States government are as follows:

  i. Legislative: The legislative branch is responsible for making laws and is composed of the United States Congress, which consists of two houses: the House of Representatives and the Senate.
  ii. Executive: The executive branch is responsible for implementing and enforcing laws. It is headed by the President of the United States and includes various departments and agencies.
  iii. Judicial: The judicial branch is responsible for interpreting laws and ensuring their constitutionality. It is headed by the Supreme Court of the United States and includes other federal courts.

  The military, while an essential component of national defense, is not considered one of the three branches of the United States government.

22. a) Rabindranath Tagore

Explanation: The Indian national anthem "Jana Gana Mana" was written by Rabindranath Tagore. Rabindranath Tagore was a prominent Bengali poet, philosopher, musician and artist who composed the lyrics of "Jana Gana Mana" in Bengali. The national anthem was adopted as India's official anthem on January 24, 1950 to days before India becomes a Republic.

23. b) Mesopotamian

Explanation: The ancient civilization known for inventing the wheel is the Mesopotamian civilization. Mesopotamia, located in the region of modern-day Iraq, was one of the earliest cradles of civilization. The invention of the wheel is attributed to the Mesopotamians, who developed it around 3500 BCE. The wheel revolutionized transportation and had a significant impact on the development of various aspects of civilization, including trade, agriculture and warfare. The invention of the wheel marked a crucial milestone in human history and contributed to advancements in technology and civilization as a whole.

24. d) The Eiffel Tower

Explanation: The Eiffel Tower is not one of the Seven Wonders of the Ancient World. It is a famous landmark located in Paris, France, and was built in the late 19th century, making it a modern structure that is not part of the original Seven Wonders of the Ancient World list.

25. a) Jawaharlal Nehru

Explanation: The first prime minister of India was Jawaharlal Nehru. He held the position of Prime Minister from 1947, when India gained independence, until his death in 1964. Pandit Jawaharlal Nehru played a significant role in shaping modern India and was a key figure in the Indian independence movement.

26. b) Digital Skills for Life

Explanation: 'International Girls in ICT Day' is observed every year on April 27 to encourage and empower girls and young women to explore and pursue careers in information and communication technology.

27. The correct answer is not listed among the given options.

Explanation: Let's assume the cost of one orange is 'x' and the cost of one banana is 'y'.

According to the given information:

$3x + 2y = 35$ ...(Equation 1)

$2x + 3y = 30$ ...(Equation 2)

To find the cost of one orange and one banana, we need to solve these two equations simultaneously.

Multiplying Equation 1 by 3 and Equation 2 by 2, we get:

$9x + 6y = 105$ ...(Equation 3)

$4x + 6y = 60$ ...(Equation 4)

Subtracting Equation 4 from Equation 3, we get:

$9x - 4x = 105 – 60$

$5x = 45$

$x = 9$

Substituting the value of x in Equation 1, we get:

$3(9) + 2y = 35$

$27 + 2y = 35$

$2y = 35 – 27$

$2y = 8$

$y = 4$

Therefore, the cost of one orange is Rs. 9 and the cost of one banana is Rs. 4.

The cost of one orange and one banana would be Rs. 9 + Rs. 4 = Rs. 13.

So, the correct answer is not listed among the given options.

28. a) 36

Explanation: The given sequence represents the squares of consecutive natural numbers.

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

Following this pattern, the next number in the sequence would be $6^2 = 36$.

Therefore, the number that comes next in the sequence is 36.

29. a) 47

Explanation: To find the missing number in the given sequence, let's analyze the pattern:

The difference between consecutive terms seems to be increasing.

5 - 2 = 3

11 - 5 = 6

23 - 11 = 12

The differences between consecutive terms are doubled each time.

To find the missing number:

23 + 24 = 47

Therefore, the missing number in the sequence is 47.

30. a) Brother

Explanation: In the given scenario, B is the son of C and C is the father of D. Therefore, B is the brother of D.

31. c) U

Explanation: The given sequence follows a pattern where each letter is the result of adding 4 to the previous letter.

A + 4 = E

E + 4 = I

I + 4 = M

M + 4 = Q

Following this pattern, the next letter would be Q + 4 = U.

Therefore, the next letter in the sequence is U (c).

32. b) 120

Explanation: To find the missing number in the given sequence, let's analyze the pattern:

The sequence appears to be based on the concept of multiplying each number by the next consecutive number.

1 * 2 = 2

2 * 3 = 6

6 * 4 = 24

Following this pattern, the missing number would be:

24 * 5 = 120

Therefore, the missing number in the sequence is 120.

33. d) Fish

Explanation: The others are mammals and live on land, thus terrestrial animals.

The options (a) Elephant, (b) Lion and (c) Giraffe are all land animals or mammals, while

(d) Fish is an aquatic animal. Fishes have distinct features and live in water, whereas elephants, lions, and giraffes are terrestrial animals.

34. a) 9

Explanation: The number that is the odd one out in terms of the pattern is 9.

The options (b) 27, (c) 64 and (d) 125 are all perfect cubes, as $27 = 3^3$, $64 = 4^3$ and $125 = 5^3$.

9 is not a perfect cube. It is equal to 3^2, which means it is a perfect square (3^2) but not a perfect cube. Therefore, 9 is the odd one out.

35. b) Riddle

Explanation: The synonym for "conundrum" is Riddle.

36. a) Triangle

Explanation: The pattern in the given sequence is as follows:

Square, Circle, Triangle, Square, Circle, Triangle, Square, Circle, ...

The pattern repeats every three shapes. It starts with a Square, followed by a Circle, and then a Triangle.

Following the pattern, the next shape would be a Triangle.

Therefore, the next shape in the pattern is Triangle.

37. a) Nyishi Tribe

Explanation: Protect Hornbills Project is a community-driven project aimed at conserving hornbills. Nyishi Tribe is playing a major role in this initiative. Hornbill Nest Adoption Program (HNAP), a community-based hornbill conservation programme, was started in 2012. HNAP operates in the forests outside Arunachal Pradesh's Pakke Tiger Reserve.

38. a) True

Explanation: The given statements are as follows:

- All trees are plants.
- All plants are green.
- All trees are green.

If the first two statements are true, we can conclude that the third statement is also true. Since the first statement establishes that all trees are plants, and the second statement establishes that all plants are green, it logically follows that all trees, being a type of plant, would also be green.

Hence, the answer is True.

39. a) Trade

Explanation: India pulled out of the trade-related negotiations of the United States-led Indo-Pacific Economic Framework (IPEF). Union Commerce and Industry Minister Shri

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Piyush Goyal confirmed India's decision of not joining the trade pillar of IPEF. The IPEF Ministerial Meet was recently hosted by the United States.

40. a) Timid

41. b) Some balls are blue.

    Explanation: Based on the given information, "all balls are cubes" and "some cubes are blue." We can conclude from the statement that Some balls are blue must be true.

42. c) Some evergreen things are not flowers.

    Explanation: If all flowers are trees and some trees are evergreen, we can determine the following statements:

    a) All evergreen things are trees. - This statement is not necessarily true. While it is true that some trees are evergreen, it does not imply that all evergreen things are trees. There could be other types of evergreen things that are not trees, such as shrubs or plants.

    b) All trees are evergreen. - This statement is not necessarily true. While it is true that some trees are evergreen, there are also deciduous trees that shed their leaves seasonally.

    c) Some evergreen things are not flowers. - This statement is true. Since all flowers are trees, and some trees are evergreen, there are certainly some evergreen things that are not flowers.

    d) Some flowers are not evergreen. - This statement is not necessarily true. Since all flowers are trees and some trees are evergreen, it is possible that all flowers are evergreen as well. However, without additional information, we cannot conclude whether some flowers are not evergreen.

    Therefore, the correct answer is (c) Some evergreen things are not flowers

43. b) Mumbai

    Explanation: The Shanghai Cooperation Organization (SCO) Film Festival began with a grand opening ceremony in Mumbai. Union Minister for Information and Broadcasting and Youth Affairs and Sports Shri Anurag Singh Thakur and Minister of State Smt Meenakshi Lekhi inaugurated the SCO Film Festival. The SCO Film Festival organized to mark India's Presidency at SCO and to showcase the diversity of films from the SCO region.

44. c) EU

    Explanation: Copernicus is the Earth observation component of the European Union Space Programme. Copernicus Climate Change Service (C3S) is one of the six thematic services provided by the Copernicus Programme. According to C3S, March 2023 witnessed variations on several meteorological fronts.

45. c) Jammu and Kashmir

    Explanation: Namda is a type of rug made using felted wool. This centuries-old traditional craft from the Jammu and Kashmir is at the brink of extinction. Namda is made in several stages and requires skilled craftsmanship that has been passed down through generations.

46. b) Some healthy things are not fruits.

    Explanation: If all apples are fruits and all fruits are healthy, we can determine the following statements:

    a) All healthy things are apples. - This statement is not necessarily true. While all apples are fruits and considered healthy, there could be other healthy things that are not apples. For example, vegetables or certain nuts can also be considered healthy.

    b) Some healthy things are not fruits. - This statement is true. Since all fruits are healthy and not all healthy things are apples, it implies that there are some healthy things that are not fruits.

    c) No fruits are healthy. - This statement is not necessarily true. Given that all fruits are healthy in this scenario, it contradicts the statement.

    d) All fruits are apples. - This statement is not necessarily true. While all apples are fruits, there are many other types of fruits that are not apples, such as oranges, bananas, and grapes.

    Therefore, the correct answer is (b) Some healthy things are not fruits.

47. a) Some tall things are not cats.

    Explanation: Given the information that all cats are black and all black things are tall, we can determine the following statements:

    a) Some tall things are not cats. - This statement is true. Since all cats are black and all black things are tall, it implies that there are some tall things that are not cats, such as tall objects that are not black.

    b) All tall things are cats. - This statement is not necessarily true. While all cats are black and all black things are tall, it does not mean that all tall things are cats. There could be other tall things that are not cats, such as tall buildings or trees.

    c) No cats are tall. - This statement is not true. If all black things are tall in this scenario, it contradicts the statement that

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all cats are black and suggests that all cats would also be tall.

d) All cats are tall. - This statement is not necessarily true. While all cats are black and all black things are tall, it does not guarantee that all cats are tall. There could be short cats that are still black.

Therefore, the correct answer is (a) Some tall things are not cats.

48. a) No books are pencils.

Explanation: Given the information that no books are pens and all pens are pencils, we can determine the following statements:

a) No books are pencils. - This statement is true. If no books are pens, and all pens are pencils, it implies that no books can be pencils.

b) All pencils are books. - This statement is not necessarily true. While all pens are pencils, it does not mean that all pencils are books. There could be other objects that are pencils but not books, such as mechanical pencils.

c) Some books are not pencils. - This statement is not necessarily true. Since no books are pens and all pens are pencils, it is possible that all books are also not pencils. However, it is also possible that there are some books that are pencils, depending on objects that are both books and pens.

d) Some pencils are not books. - This statement is not necessarily true.

Therefore, the correct answer is (a) No books are pencils.

49. c) February 28

Explanation: National Science Day is celebrated in India on February 28th every year to mark the discovery of the Raman Effect by Sir Chandrasekhara Venkata Raman. It was observed for the first time in 1987. The day celebrates the contributions of scientists and creates awareness about the importance of science in everyday life. This discovery of Raman Scattering won Raman the Nobel Prize in Physics in 1930, making him the first Indian to receive a Nobel Prize in a scientific field.

50. b) Bihar

Explanation: Satuani is a festival related to nature. The traditional harvest festival will be celebrated in North India mainly in Bihar to mark the start of the summer season. It includes eating sattu made out of lentil flour. Jur Sital, also known as Maithili new year is observed on the next day of Satuani.

51. c) All snakes are cold-blooded.

Explanation: If all snakes are reptiles, and all reptiles are cold-blooded, then we can determine the following statements:

a) All cold-blooded things are snakes. - This statement is not necessarily true. While all reptiles are cold-blooded and all snakes are reptiles, it does not mean that all cold-blooded things are snakes. There could be other cold-blooded animals that are not snakes, such as lizards or turtles.

b) No snakes are cold-blooded. - This statement is not true. If all reptiles are cold-blooded and all snakes are reptiles, it implies that all snakes are cold-blooded.

c) All snakes are cold-blooded. - This statement is true. If all reptiles are cold-blooded and all snakes are reptiles, it implies that all snakes are cold-blooded.

d) All reptiles are snakes. - This statement is not true. While all snakes are reptiles, it does not mean that all reptiles are snakes. There are other types of reptiles, such as lizards and turtles, that are not snakes.

Therefore, the correct statement is (c) All snakes are cold-blooded.

52. b) EU

Explanation: The European Data Protection Board is an autonomous institute in charge of supervising data protection regulations within the European Union. It recently decided to set up a task force to monitor Open AI's ChatGPT. Italy imposed a temporarily ban on ChatGPT.

53. a) Some blue things can fly.

Explanation: If all birds can fly, and some birds are blue, then we can determine the following statements:

a) Some blue things can fly. - This statement is true.

b) No blue things can fly. - This statement is not true. It is stated that all birds can fly, and some birds are blue, indicating that there are blue birds that can fly.

c) All birds are blue. - This statement is not necessarily true. It is stated that some birds are blue, but it does not mean that all birds are blue. There are birds of different colors, and blue is just one possible color among many.

d) Some birds can't fly. - This statement is not necessarily true. It is initially stated that all birds can fly, so there should not be any birds that cannot fly based on the given information.

54. c) India

Explanation: India received the GSMA Government Leadership Award 2023 at the

GSMA's Mobile World Congress (MWC) 2023. The award recognized the Indian Government's efforts in the development of the telecom sector. It also recognizes the regulatory mechanism policies targeting the mobile connectivity. Currently, 387 districts across India have access to 5G services.

55. a) Digit ALL: Innovation and technology for gender equality
Explanation: International Women's Day is celebrated annually on March 8th. Its origins can be traced back to the activities of labour movements in North America and Europe at the turn of the twentieth century. It was officially recognized in 1977. The theme for this year's Women's Day, according to the United Nations is "DigitALL: Innovation and technology for gender equality." The theme for this year's International Women's Day campaign is Embrace Equity, which aims to highlight the importance of gender equity in every society.

56. d) Andaman and Nicobar Islands
Explanation: Galathea Bay National Park is situated in the Andaman and Nicobar Islands.

57. a) Kerala
Explanation: Mohiniyattam dance form is most popular in the state of Kerala.

58. a) Hanoi
Explanation: The capital city of Vietnam is Hanoi.

59. c) Geneva
Explanation: The headquarters of the World Meteorological Organization is located in Geneva.

60. b) 08 September
Explanation: International Literacy is celebrated all around the world on 8 September every year to make people aware about the meaning and importance of literacy as a matter of dignity and human rights.

61. a) Mr. Kristalina Georgieva
Explanation: Presently, Bulgarian economist Kristalina Georgieva is the managing director (MD) and Chairwoman of the IMF.

62. b) Ashwini Vaishnaw
Explanation: He is a former IAS officer serving as 13th Minister of Railways.

63. b) Caspian Sea
Explanation: It is the world's largest lake is Caspian Sea. However world's largest freshwater lake in respect to the volume of water is Lake Baikal. Michigan-Huron which is a single water body in United States & Canada is largest Freshwater lake if considered one body by surface area. However Lake superior in US & Canada is largest single lake with respect to surface area if Michigan-Huron is counted as two lakes. In this condition if Michigan & Huron are third and fourth largest lakes. Lake Baikal is also world's deepest lake.

64. d) Carlos Alcaraz
Explanation: Top-seeded Spanish player, Carlos Alcaraz won his first title since his milestone U.S. Open triumph by beating Cameron Norrie in straight sets at the Argentina Open tennis Tournament. It was Alcaraz's first ATP tournament since November 2022 after he missed the Australian Open due to abdominal and hamstring injuries.

65. c) Jammu and Kashmir
Explanation: India's first Glass Igloo restaurant has opened in Gulmarg, Kashmir. India's first glass igloo restaurant in Gulmarg has become a popular destination for tourists who visit the area to experience its scenic beauty.

66. b) Gujarat
Explanation: The Somnath temple is situated in Sagar Kant of Saurashtra in Gujarat state. One of the 12 holy Jyotirlingas of Lord Shiva is in Jyotirlinga here in Somnath.

67. b) Mumbai
Explanation: The Reserve Bank of India was established on April 1, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. The central office of the Reserve Bank was initially established in Calcutta but was permanently moved to Mumbai in 1937.

68. d) Shri Zakir Hussain

69. a) Article 355
Explanation: Article 355 is found in part XVIII of the Indian constitution which contains emergency provisions that are meant to be used in extremely rare circumstances. This section of the constitution empowers the Union government to declare a state of emergency (through Article 352). As per article 355. It shall be the duty of the Union to protect every State against external aggression and internal disturbance and to ensure that the Government of every State is carried on in accordance with the provisions of this Constitution.

70. b) European Space Agency (ESA)
Explanation: The European Space Agency (ESA) launched the Jupiter Icy Moons Explorer mission (**JUICE**) on Friday, 14 April, at 8:14 a.m. ET using an Ariane 5 rocket from Europe's spaceport in Kourou, French Guiana.

71. a) Aman Sherawat
Explanation: Aman Sehrawat, a freestyle wrestler, won India's 1st gold medal, under the men's 57kg freestyle category, at the Asian

Wrestling Championships 2023. 36th edition of Asian Wrestling Championships was held in Astana, Kazakhstan, from 9 April to 14 April 2023. Aman Sehrawat won the gold medal by defeating Kyrgyzstan's Almaz Smanbekov (9-4).

72. c) Karnataka

Explanation: Bandipur National Park is a national park covering 868.63 km2 (335.38 sq mi) in Chamarajnagar district in the Indian state of Karnataka. It was established as a tiger reserve under Project Tiger in 1973.

73. a) Planet

Explanation: Sedna (minor-planet designation 90377 Sedna) is a dwarf planet in the outermost reaches of the Solar System discovered in 2003. Spectroscopy has revealed that Sedna's surface composition is largely a mixture of water, methane and nitrogen ices with tholins. Its surface is one of the reddest among Solar System objects and it has a diameter of approximately 1,000 km.

74. b) Energy

Explanation: Kilowatt-hour (KWh) is unit of Electrical Energy.

We know that, Power×time=Energy

⇒ Kilo-Watt×Hour=Energy

1KWh is electrical energy consumed when an electrical equipment of power 1 KiloWatt is operated for 1 Hour.

It is also used as commertial unit of energy in households/Buildings/Factories etc where 1 Unit of electricity is equivalent of 1KW-h of energy.

75. c) Jatakas

- Jatakas are regarded as a body of literature, it consists of various narratives of the life of Gautam Budhha taking birth in both human and animal forms.
- The motive behind Jatakas narrative is to highlight the moral values that he propagated in each of the characters.
- Theravada Buddhism refers to Jatakas as a commentary to the famous Pali Kanon.
- Pali Kanon is a collection of Theravadan Buddhist literature.