

X- GMT SAMPLE PAPER 1

Logical Reasoning

DIRECTIONS (Qs. 1-2) : In questions below, select the related word/letters/number from the given alternatives.

1. 9 : 24 :: ? : 6
(a) 3 (b) 2 (c) 1 (d) 5
2. STAR : SBUT :: WARD : ?
(a) XBAW (b) ESBX (c) FAME (d) DRAW

DIRECTIONS (Qs. 3-4) : In questions a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

3. BDFH, IKMO, PRTV, _
(a) WYAC (b) WXYA (c) WXYZ (d) WYZA
4. 2, 65, 7, 59, 12, 53, _, _
(a) 15, 42 (b) 17, 45 (c) 17, 47 (d) 18, 48
5. If GOODNESS is coded as HNPCODTR, how can GREATNESS be written in that code?
(a) HQFZSMFRT (b) HQFZUFRTM
(c) HQFZUODTR (d) HQFZUMFRT
6. Seema walks 30 m North. Then she turns right and walks 30 m then she turns right and walks 55 m. Then she turns left and walks 20 m. Then she again turns left and walks 25m. How many metres away is she from her Original position?
(a) 45 m (b) 50 m (c) 66 m (d) 55 m
7. A family consisted of a man, his wife, his three sons, their wives and three children in each son's family. How many members are there in the family?
(a) 12 (b) 13 (c) 15 (d) 17
8. Find out the correct answer for the unsolved equation on the basis of the given equation
If $6 * 5 = 91$
 $8 * 7 = 169$
 $10 * 7 = 211$
then $11 * 10 = ?$
(a) 331 (b) 993 (c) 678 (d) 845
9. 12 year old Rahul is three times as old as his brother Paras. How old will Rahul be when he is twice as old as Paras?
(a) 14 years (b) 20 years (c) 16 years (d) 18 years
10. In the following question, select the missing number from the given responses.

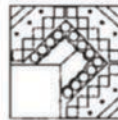
5	4	7	8
6	9	5	?
3	7	2	6

- (a) 6 (b) 4 (c) 10 (d) 8

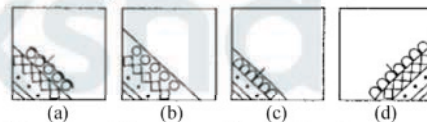
DIRECTIONS (Qs. 11-12) : In question below, a statement is given followed by three conclusions respectively. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions if any, follow from the given statements.

11. **Statement :** Pictures can tell a story. All story books have pictures. Some story books have words.
Conclusions: I. Pictures can tell a story better than words can.
II. The stories in story books are very simple.
III. Some story books have both words and pictures.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Only conclusion III follows
(d) Both conclusions I and II follow
12. There are five houses P, Q, R, S and T. P is right of Q and T is left of R and right of P. Q is right of S. Which house is in the middle?
(a) P (b) Q (c) T (d) R
13. In question below, which answer figure will complete the pattern in the question figure?

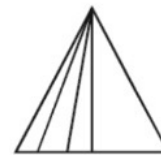
Question figure :



Answer figures :

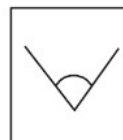


14. How many triangles are there in the given figure?

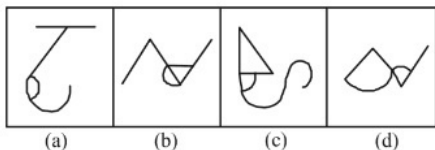


- (a) 5 (b) 12 (c) 9 (d) 10
15. From the given answer figures, select the one in which the question figure is hidden/embedded in the same direction.

Question Figure:



Answer Figures:



16. There has been a considerable drop in sales of four wheelers during the past six months when compared to the number of four wheelers sold during this period last year. Which of the following can the probable cause of the above phenomenon?

- (A) The govt. has imposed higher excise duty on four wheelers at the beginning of this year.
(B) The petrol prices have risen considerably during the past eight months.
(C) The rate of interest on home and car loans have been rising for the past seven months.

- (a) All (A), (B) and (C) (b) (A) and (C) Only
(c) (B) and (C) Only (d) (B) Only

17. Question below is followed by three arguments numbered I, II and III. You have to decide which of the argument(s) is/are "strong" and indicate your answer accordingly. Should the Government restrict use of electricity for each household depending upon the requirement?

Arguments :

- I. Yes, this will help government tide over the problem of inadequate generation of electricity.
II. No, every citizen has right to consume electricity as per their requirement as they pay for using electricity.
III. No, the Government does not have the machinery to put such a restriction on use of electricity.

- (a) Only I is strong (b) Only II is strong
(c) Only I and II are strong (d) Only II and III are strong

18. In the question below there is a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true. Then consider the 2 conclusions together and decide which of them follows beyond a reasonable doubt from the information given in the statement.

Statement: Lenovo launched a new laptop and students can buy it for a special offer price.

Conclusions:

- I. Only students can buy the new laptop
II. Lenovo wants to offer affordable laptops to students.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both conclusion I and II follows
(d) Neither conclusion I nor II follows

19. In each of the questions, below is given a statement followed by two courses of action. Course of action is a step for administrative decision to be taken for improvement, follow up or further action in regard to the problem, policy etc. On the basis of the information given in statement, you have to assume everything in the statement to be true, then decide which of the given suggested courses of action is/are logically worth pursuing.

Statement

It is reported that during the last fortnight there has been three cases of near miss situation involving two aircrafts over the busy city airport. In all these cases both the aircrafts came perilously close to each other and could avoid collision as the pilots acted just in time.

Courses of action

- I. The pilots of all the six aircrafts involved in these incidents should immediately be derostered.
II. Some flights should be diverted to other airports for the next few months to decongest the sky over the city airport.
III. Air traffic controllers of the city airport should be sent for refresher courses in batches to prepare themselves to handle such pressure situation.

- (a) Only I follows (b) Only II follows
(c) Only III follows (d) II and III follows

20. The question below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

Who among A, B, C, D, E and F each having a different height, is the tallest?

- I. B is taller than A but shorter than E.
II. Only two of them are shorter than C.
III. D is taller than only F.

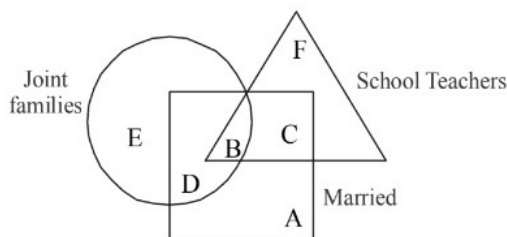
- (a) Only I and II
(b) Only I and III
(c) Only II and III
(d) All I, II and III are required to answer the question

21. Select the set in which the numbers are related in the same way as are the numbers of the following set.

(64, 100, 328)

- (a) (16, 36, 54) (b) (49, 81, 137)
(c) (25, 49, 148) (d) (36, 64, 97)

22. Triangle represents school teachers. Square represents married persons. Circles represents persons living in joint families. Married persons living in Joint families but not working as school teachers are represented by



- (a) D (b) F (c) A (d) C

23. Let

$N = 11$ $O = 13$ $P = 17$

Find the letter to be in the box in the relation given :

$$(N \times \boxed{} + M) \div K = 31$$

- (a) L (b) P (c) J (d) O

24. A group of friends are sitting in an arrangement one each at the corner of an octagon. All are facing the centre. Mahima is sitting diagonally opposite Rama, who is on Sushma's right. Ravi is next to Sushma and opposite Girdhar, who is on Chandra's left. Savitri is not on mahima's right but opposite Shalini. Who is on Shalini's right?
(a) Ravi (b) Mahima (c) Girdhar (d) Rama
25. Certain numbers have symbols as given below.
1 2 3 4 5 6 7 8 9 0
○ □ ([] d D) ∪ ∩
What is the number indicated by these symbols?
[] ∩ ∪ d
(a) 47095 (b) 56907 (c) 45096 (d) 45906

Quantitative Aptitude & Data Interpretation

26. What is the sum of the digits of the least number which when divided by 52, leaves 33 as remainder, when divided by 78 leaves 59 and when divided by 117, leaves 98 as remainder?
(a) 17 (b) 18 (c) 19 (d) 21
27. 38L of milk was poured into a tub and the tub was found to be 5% empty. To completely fill the tub, what amount of additional milk must be poured?
(a) 1 L (b) 2 L (c) 3 L (d) 4 L
28. Prakash, Sunil and Anil started a business jointly investing ₹11 lakhs, ₹16.5 lakhs and ₹8.25 lakhs respectively. The profit earned by them in the business at the end of three years was ₹19.5 lakhs. What will be the 50% of Anil's share in the profit?
(a) ₹4.5 lakhs (b) ₹2.25 lakhs
(c) ₹2.5 lakhs (d) ₹3.75 lakhs
29. A man borrowed some money from a private organisation at 5% simple interest per annum. He lended 50% of this money to another person at 10% compound interest per annum and thereby the man made a profit of ₹3205 in 4 years. The man borrowed
(a) ₹80,000 (b) ₹1,00,000
(c) ₹1,20,000 (d) ₹1,50,000
30. There are 45 male and 15 female employees in an office. If the mean salary of the 60 employees is ₹4800 and the mean salary of the male employees is ₹5000, then the mean salary of the female employees is
(a) ₹4200 (b) ₹4500 (c) ₹5600 (d) ₹6000
31. A train started from a station with a certain number of passengers. At the first halt, $\frac{1}{3}$ rd of its passengers got down and 120 passengers got in. At the second halt, half of the passengers got down and 100 persons got in. Then, the train left for its destination with 240 passengers. How many passengers were there in the train when it started?
(a) 540 (b) 480 (c) 360 (d) 240
32. An equilateral triangle and a regular hexagon are inscribed in a given circle. If a and b are the lengths of their sides respectively, then which one of the following is correct.
(a) $a^2 = 2b^2$ (b) $b^2 = 3a^3$ (c) $b^2 = 2a^2$ (d) $a^2 = 3b^2$
33. The sides of a parallelogram are 12 cm and 8 cm long and one of the diagonals is 10 cm long. If d is the length of other diagonal, then which one of the following is correct?
(a) $d < 8$ cm (b) $8 \text{ cm} < d < 10$ cm
(c) $10 \text{ cm} < d < 12$ cm (d) $d > 12$ cm
34. Which one of the following relations for the numbers 10, 7, 8, 5, 6, 8, 5, 8 and 6 is correct?
(a) Mean = Median (b) Mean = Mode
(c) Mean > Median (d) Mean > Mode
35. If $pqr = 1$, what is the value of the expression
$$\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}}?$$

(a) 1 (b) -1 (c) 0 (d) $\frac{1}{3}$
36. What should be subtracted from $27x^3 - 9x^2 - 6x - 5$ to make it exactly divisible by $(3x - 1)$?
(a) -5 (b) -7 (c) 5 (d) 7
37. If $x + \left(\frac{1}{x}\right) = 2 \cos \alpha$, then what is the value of $x^2 + \left(\frac{1}{x^2}\right)$?
(a) $4 \cos^2 \alpha$ (b) $4 \cos^2 \alpha - 1$
(c) $2 \cos^2 \alpha - 2 \sin^2 \alpha$ (d) $\cos^2 \alpha - \sin^2 \alpha$

DIRECTIONS (Qs. 38-39): Study the following table carefully in answer the questions that follow :

Number of Executives recruited by Six different organisations over the years

Organisation	P	Q	R	S	T	U
2004	458	512	418	502	476	492
2005	522	536	472	500	482	523
2006	480	495	464	508	488	518
2007	506	505	428	444	490	534
2008	427	485	422	512	510	498
2009	492	488	444	499	512	510

38. What is the per cent increase in the number of Executives recruited by organisation R in 2005 from the previous year? (rounded off to two digits after decimal)
(a) 18.67 (b) 12.92 (c) 16.48 (d) 13.21
39. The number of Executives recruited by organisation T in the year 2008 forms approximately what percent of the total number of Executives recruited by all the organisations together in that year?
(a) 11 (b) 31 (c) 18 (d) 26
40. If the area of a circle, inscribed in an equilateral triangle is $4\pi \text{ cm}^2$, then what is the area of the triangle?
(a) $12\sqrt{3} \text{ cm}^2$ (b) $9\sqrt{3} \text{ cm}^2$
(c) $8\sqrt{3} \text{ cm}^2$ (d) 18 cm^2
41. By selling an article for ₹21,000, a man gains 5%. To get a profit of 15%, he has to sell it for
(a) ₹19,800 (b) ₹20,700
(c) ₹23,000 (d) ₹25,000

42. If 10 men or 18 boys can do a work in 15 days, then the number of days required by 15 men and 33 boys to do twice the work is
(a) $4\frac{1}{2}$ (b) 8 (c) 9 (d) 36
43. A father's age was five times his son's age five years ago and will be three times the son's age after two years. The ratio of the present age of the father to that of the son is
(a) 33:5 (b) 11:5 (c) 3:1 (d) 10:3
44. If $a * b * c = \sqrt{\frac{(a+2)(b+3)}{(c+1)}}$, then the value of $(6 * 15 * 3)$ is
(a) 6 (b) 3
(c) 4 (d) Can't be determined
45. The ratio of water and alcohol in two different containers is 2 : 3 and 4 : 5. In what ratio we are required to mix the mixtures of two containers in order to get the new mixture in which the ratio of alcohol and water be 7 : 5?
(a) 7:3 (b) 5:3 (c) 8:5 (d) 2:7
46. Two electronic musical instruments were purchased for ₹ 8000. The first was sold at a profit of 40% and the second at loss of 40%. If the sale price was the same in both the cases, what was the cost price of two electronic musical instruments?
(a) ₹ 2000, ₹ 5000 (b) ₹ 2200, ₹ 5500
(c) ₹ 2400, ₹ 5000 (d) ₹ 2400, ₹ 5600
47. 5 Indian and 5 American couples meet at a party & shake hands. If no wife shakes hands with her husband and no Indian wife shakes hands with a male, then the number of hand shakes that takes place in the party is
(a) 95 (b) 110 (c) 135 (d) 150
48. One bag contains 4 white balls and 2 black balls. Another bag contains 3 white balls and 5 black balls. If one ball is drawn from each bag, determine the probability that one ball is white and another is black.
(a) $\frac{6}{24}$ (b) $\frac{5}{24}$ (c) $\frac{7}{24}$ (d) $\frac{13}{24}$
49. A spherical ball of lead, 3 cm in diameter, is melted and recast into three spherical balls. The diameter of two of these balls are 1.5 cm and 2 cm respectively. The diameter of the third ball is
(a) 2.5 cm (b) 2.66 cm (c) 3 cm (d) 3.5 cm
50. A conical cavity is drilled in a circular cylinder of 15 cm height and 16 cm base diameter. The height and the base diameter of the cone are same as those of the cylinder. Determine the total surface area of the remaining solid.
(a) $440\pi\text{ cm}^2$ (b) $215\pi\text{ cm}^2$
(c) $542\pi\text{ cm}^2$ (d) $376\pi\text{ cm}^2$

Language Comprehension

DIRECTIONS (Qs. 51-53) : Fill in the blanks with the appropriate word or group of words.

51. Happiness consists in being _____ what we have?
(a) contented to (b) contented with
(c) contented for (d) contented in

52. His rude behaviour is a _____ his organization.
(a) disgrace for (b) disgrace on
(c) disgrace upon (d) disgrace to
53. If you had followed the rules, you _____ disqualified.
(a) will not be (b) would not be
(c) will not have been (d) would not have been

DIRECTIONS (Qs. 54-57) : Read the passage and then answer the questions based on it. You are required to select your answers based on the content of the passage and opinion of the author only.

While I stood drinking in the beauty of this placid scene I became conscious of an alteration. In a moment the sole porter emerged from his midday nap, operated a signal that clanked noisily into position, and then ambled slowly towards me for my return-half-ticket, whilst I remarked that his red amiable face and easygoing gait were in perfect harmony with the tranquil surroundings. A wisp of smoke on the horizon with a dark snake crawling beneath it announced the approach of the train. As it drew nearer, the deep silence of the place was gradually displaced by a creaking of brakes and a hissing of steam. Save for myself, no one entered the train and no one alighted. The porter with leisurely expertness, trundled a couple of milk churns on board, the door was slammed, the guard signalled to the driver, and we moved off, leaving the small station once more to its drowsy silence.

54. The meaning of drowsy is
(a) Untidy (b) Sleepy (c) Freezing (d) Drugged
55. The central idea of the passage is
(a) Leisure and Peace (b) Hurry and Noise
(c) Activity (d) The Porter
56. Who had a midday nap?
(a) The author (b) The passenger
(c) The Station-master (d) The porter
57. Who/what does first break the silence of the station?
(a) The train (b) The porter
(c) The passenger (d) Milk churns

DIRECTIONS (Qs. 58-59) : In this section, you are required to spot errors in sentences. Each sentence is divided into three parts. Read each sentence to find out whether there is an error in any of the parts. No sentence has more than one error. Some of the sentences do not have any error. When you find an error in a sentence, the letter indicated under that part of the sentence is the answer and therefore the same may be marked on the separate Answer Sheet. If there is no error in any part, response will be signified by the letter (d).

58. I wanted to see _____ whethey they
(a) _____ (b) _____
_____ had actually read the notes. No error
(c) _____ (d) _____
59. They made him treasurer because they considered
(a) _____ (b) _____
_____ him to be honest and efficient No error
(c) _____ (d) _____

DIRECTIONS (Qs. 60-61) : Each questions below consists of a word in capital letters followed by four words or group of words. Select the word or group of words that is most similar in meaning to the words in capital letters.

60. PALPABLE
 (a) Trembling (b) Weak
 (c) Obvious (d) Foolish
61. USURP
 (a) To climb upon (b) to yield
 (c) To seize power or position illegally
 (d) To demand unlawfully high interest on a loan

DIRECTIONS (Qs. 62-63) : Each questions below consists of a word in capital letters followed by four words or group of words. Select the word or group of words that is most opposite in meaning to the words in capital letters.

62. OUTLANDISH
 (a) Modern (b) Moderate
 (c) Disrespectful (d) Coward
63. ABSOLVE
 (a) To remember someone fondly
 (b) To imitate someone
 (c) To pretend
 (d) To declare someone guilty

DIRECTIONS (Qs. 64-65) : In the following questions four alternatives are given for the idiom/phrase italicised and underlined in the sentence. Choose the alternative which best expresses the meaning of idiom/phrase.

64. I cannot get along with a man who plays *fast and loose*.
 (a) behaves in an unreliable and insincere way
 (b) has a loose tongue
 (c) lives a life of ease and luxury
 (d) does not know how to behave himself
65. There is *no love lost between two neighbours*.
 (a) close friendship (b) cool indifference
 (c) intense dislike (d) a love hate relationship

DIRECTIONS (66-68) : Read the given passage carefully and select the best answer to each question out of the four given alternatives.

For most people, music is an important part of daily life. Some rely on music to get them through the morning commute, while others turn up a favourite playlist to stay pumped during a workout. Many folks even have the stereo on when they're cooking a meal, taking a shower, or folding the laundry. Music is often linked to mood. A certain song can make us feel happy, sad, energetic, or relaxed. Because music can have such an impact on a person's mindset and well-being, it should come as no surprise that music therapy has been studied for use in managing numerous medical conditions. All forms of music may have therapeutic effects, although music from one's own culture may be most effective. In Chinese medical theory, the five internal organs and meridian systems are believed to have corresponding musical tones, which are used to encourage healing.

66. Music is often linked to _____.
 (a) anger (b) mood (c) anxiety (d) happiness
67. How is music an important part of life?
 (a) It makes us feel different emotions
 (b) It makes us sad

- (c) It helps in our daily activities
 (d) It helps us in remembering things
68. Which of the statements is true?
 (a) All forms of music may heal wounds
 (b) All forms of music may have good effect
 (c) All forms of music may be soothing
 (d) All forms of music may have therapeutic effects

DIRECTIONS (69-71) : Read the given passage carefully and select the best answer to each question out of the four given alternatives.

Approximately half of India's 1.2 billion people are under the age of 26, and by 2020 we are forecasted to be the youngest country in the world, with a median age of 29 years. With this tremendous forecast, it becomes imperative to ensure an environment which promotes positive well-being. Unfortunately, India has the highest suicide rate in the world among the youth standing at 35.5 per 100,000 people for 2012. The reason for such high numbers can be attributed to lack of economic, social, and emotional resources. More specifically, academic pressure, workplace stress, social pressures, modernisation of urban centers, relationship concerns, and the breakdown of support systems. Some researchers have attributed the rise of youth suicide to urbanisation and the breakdown of the traditional large family support system. The clash of values within families is an important factor. As young Indians become more progressive, their traditionalist households become less supportive of their choices pertaining to financial independence, marriage age, premarital sex, rehabilitation and taking care of the elderly.

69. Approximately half of India's 1.2 billion people are under the age of _____.
 (a) 30 (b) 26 (c) 22 (d) 18
70. What are the reasons for high number of suicide rates among the youth in India?
 (a) lack of monetary help by the government
 (b) lack of healthy foods
 (c) lack of economical, social and emotional resources
 (d) lack of good roads and transports
71. By which year India will become the youngest country in the world?
 (a) 2017 (b) 2030 (c) 2019 (d) 2020

DIRECTIONS (Qs. 72-73) : In the following questions, the 1st and the last sentences/parts of the passage / sentence are numbered 1 and 6. The rest of the passage / sentence is split into four parts and named P, Q, R and S. These four parts are not given in their proper order. Read the passage/sentence and find out which of the four combinations is correct. Then find the correct answer.

72. 1. There are a lot of ways to communicate : speaking, singing, clapping, hooting.
 P. Even animals communicate with one another.
 Q. Only humans can express their thoughts and feelings in words because of our superior brain.
 R. Both humans and animals also communicate through body language.
 S. But their ways differ from the humans.
 6. Sometimes we don't use words but make gestures (like traffic signs) or simple movements of the hand in order to communicate.
 (a) PRSQ (b) QPRS (c) PQRS (d) PSQR

73. 1. Fires in the Steppes or bushes scared humans earlier.
 P. Gradually, they learnt to appreciate the power of fire.
 Q. It gave them light and warmth and kept away wild animals.
 R. About 700,000 years ago, humans started fire accidentally by lightning.
 S. They could harden the tips of wooden spears and cook meat in it.
 6. Soon they learnt to produce fire by striking flintstone and pyrite with each other or by rubbing lumbars.
 (a) QSPR (b) PQSR (c) PQRS (d) QRSP

DIRECTIONS (Qs.74-75): Select the pair that expresses a relationship most similar to that expressed in the capitalized pair.

74. REHEARSAL : PERFORMANCE ::
 (a) Satisfaction : Appetite (b) Applause : Audience
 (c) Engagement : Marriage (d) Entrapment : Game
75. SORROW : DEATH ::
 (a) Laugh : Cry (b) Happiness : Birth
 (c) Fear : Hate (d) Confusion : Anger

General Awareness

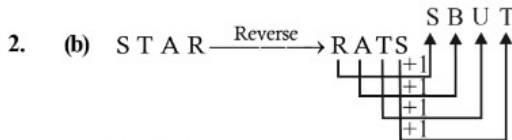
76. When had Muslim league passed the resolution "Divide and Quit" movement?
 (a) 1945 (b) 1943
 (c) 1944 (d) None of these
77. What is the ratio of money held by the public in currency to that they held in deposit ?
 (a) The currency deposit ratio
 (b) The reserve deposit ratio
 (c) Cash reserve ratio
 (d) Cash deposit ratio
78. The chemical behavior of an atom depends upon –
 (a) the number of Neutrons in the nucleus
 (b) the number of Nucleons in the nucleus
 (c) the number of Protons in its nucleus
 (d) the number of Electrons orbiting around the nucleus
79. The joint sitting of both Houses of Indian Parliament is held in connection with –
 (a) Constitutional amendment bill
 (b) Ordinary bill
 (c) Money bill
 (d) Election of the Vice – President of India
80. Many Fungi belonging to the genera Microporum Trichophyton and Epidermophyton are responsible for –
 (a) Filarial (b) Cancer (c) Ringworms (d) AIDS
81. A boat will submerge when it displaces water equal to its own –
 (a) volume (b) weight (c) surface area (d) density
82. Which organ of Human body is affected by Alzheimer disease?
 (a) Brain (b) Bone Marrow
 (c) Lung (d) Intestine
83. What is the chemical name of vitamin E ?
 (a) Calciferol (b) Tocopherol
 (c) Riboflavin (d) Phylloquinone
84. According to the Constitution of India, the Right to Property is a –
 (a) Fundamental Right (b) Directive Principle
 (c) Legal Right (d) Social Right
85. How many times has financial emergency been declared in India, so far?
 (a) Five times (b) Four times
 (c) Once (d) Never
86. Economy is in the "Liquidity Trap" when –
 (a) Rate of interest on bonds is minimum
 (b) Rate of interest on bonds is maximum
 (c) Transaction demand for money is maximum
 (d) None of the above
87. Who is the author of "The Unseen Indira Gandhi"?
 (a) K.P. Mathur (b) Bilal Siddique
 (c) Anurag Mathur (d) N.R. Narayana Murthy
88. What is 'biomagnification'?
 (a) blowing up of environmental issues by man
 (b) growth of organisms due to food consumption
 (c) reduction of dissolved O_2 caused by microbial organisms
 (d) increase in the concentration of nondegradable pollutants as they pass through food chain
89. Subhash Chandra Bose formed the government for independent India in Singapore, on –
 (a) 22nd September, 1943 (b) 20th October, 1943
 (c) 21st October, 1943 (d) 22nd October, 1943
90. 'Cerebral palsy' is a brain disorder found generally in –
 (a) Old people (b) Drug addicts
 (c) Small children (d) Only in ladies
91. India is not a member of which of the following constituent organizations of the World Bank Group?
 (a) International Centre for Settlement of Investment Disputes (ICSID)
 (b) International Development Association (IDA)
 (c) International Finance Corporation (IFC)
 (d) Multilateral Investment Guarantee Agency (MIGA)
92. The mirror used in search light is –
 (a) Concave Mirror (b) Convex Mirror
 (c) Plane Mirror (d) None of these
93. A hybrid computer is the one having the combined properties of
 (a) Super and micro computers
 (b) Mini and micro computers
 (c) Analog and digital computers
 (d) Super and mini computers
94. Photoelectric effect is
 (a) an instantaneous process
 (b) delayed process
 (c) emission of protons
 (d) emission of neutrons
95. The layer of atmosphere close to the earth's surface is called:
 (a) Exosphere (b) Ionosphere
 (c) Stratosphere (d) Troposphere
96. The longest river of peninsular India is
 (a) Godavari (b) Krishna (c) Kaveri (d) Narmada
97. **GOAL:** Digital Skill Training Programme for Tribal Women is launched by Ministry of Tribal Affairs with partnership of NITI Aayog and which of the following organisations?
 (a) Facebook (b) Google
 (c) Twitter (d) Amazon

98. Which State has topped the India Innovation Index 2019 of NITI Aayog?
 (a) Karnataka (b) Kerala
 (c) Tamil Nadu (d) Gujarat
99. Project Soli has recently been in the news. It was launched by which of the following entities?

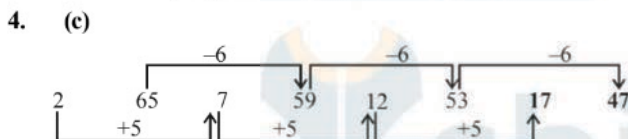
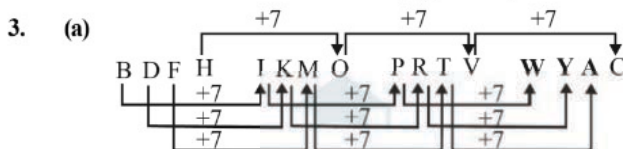
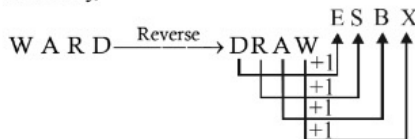
- (a) Google (b) Microsoft
 (c) Apple (d) Amazon
100. Who has been awarded the 2019 Nobel Prize in medicine?
 (a) William G. Kaelin Jr. (b) Sir Peter J. Ratcliffe
 (c) Gregg L. Semenza (d) All of the above

Hints & Explanations

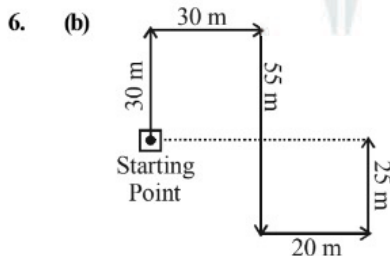
1. (a) As, $9 \times 3 - 3 = 24$
 $3 \times 3 - 3 = 6$



Similarly,



5. (d)



Required distance = $30\text{m} + 20\text{m} = 50\text{m}$

7. (d) A man + his wife = $1 + 1 = 2$
 His three sons + their wives = $3 + 3 = 6$
 Three children in each one's family = $3 \times 3 = 9$
 Total members = $2 + 6 + 9 = 17$
8. (a) As, $6 \times 5 = 30$
 $30 \times 3 + 1 = 91$
 $8 \times 7 = 56$
 $56 \times 3 + 1 = 169$
 $10 \times 7 = 70$
 $70 \times 3 + 1 = 211$
 Similarly,

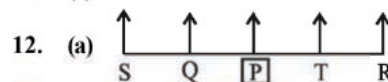
$$11 \times 10 = 110$$

$$110 \times 3 + 1 = \boxed{331}$$

9. (c) Rahul's present age = 12 yrs,
 Paras' present age = 4 yrs
 Let Rahul be twice as old as Paras after x yrs from now.
 Then, $12 + x = 2(4 + x)$
 $= 12 + x = 8 + 2x \Rightarrow x = 4$
 Hence, Rahul's required age = $12 + x \Rightarrow 16$ yrs

10. (c) As, $(5 + 4 + 7) / 2 = 8$
 $(3 + 7 + 2) / 2 = 6$
 Similarly,
 $(6 + 9 + 5) / 2 = 10$.

11. (c)



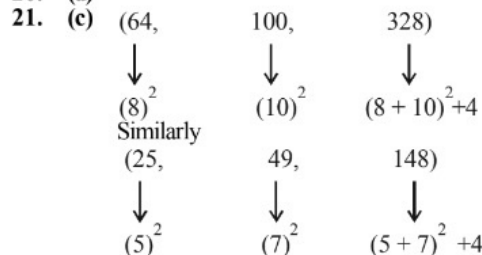
13. (a) 14. (d) 15. (d)

16. (a) All the three causes will effect the sales of four wheelers.
 17. (c) Shortage of electricity can only be faced with saving in electricity. So argument I seems to be strong. Argument II is also strong because every citizen is paying every single unit of electricity so he/she has right to consume it. Argument III seems to be weak because government can easily manage restricted use of electricity.

18. (b) It's a laptop for all. The statement says students will get an offer that does not mean other can't buy it. So I does not follow. Since students are given an offer we can conclude that Lenovo wants students to buy their laptops. So II follow.

19. (c) The air traffic controllers of the city should be sent to refresher courses so that they can improve them self in handling such situation is the most suitable course of action.

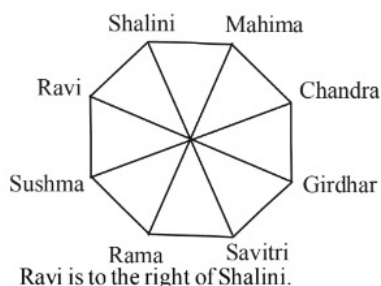
20. (d)



22. (a) Married persons living in joint families but not working as school teachers are represented by 'D'.

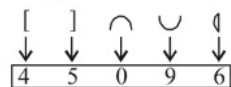
23. (a) $(N \times \boxed{L} + M) \div K = 31$
 $(11 \times 5 + 7) \div 2 = 31$
 $62 \div 2 = 31$

24. (a)



25. (c)

Here,

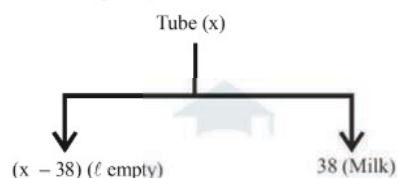


26. (a)

Here, $52 - 33 = 78 - 59 = 117 - 98 = 19$
 Now, $52 = 13 \times 2 \times 2$
 $78 = 13 \times 2 \times 3$
 $117 = 13 \times 3 \times 3$
 $\therefore \text{LCM} = 13 \times 2 \times 2 \times 3 \times 3 = 468$
 $\therefore \text{Required number} = 468 - 19 = 449$
 Hence, the sum of digits is 17.

27. (b)

Let tub capacity x L.



$$\text{Now, } x \times \frac{95}{100} = 38$$

$$x = 40 \text{ L,}$$

$$\text{Additional milk} = 40 \text{ L} - 38 \text{ L} = 2 \text{ L.}$$

28. (b)

Profit will be shared in the ratio of
 $11 \times 3 : 16.5 \times 3 : 8.25 \times 3$
 $= 11 : 16.5 : 8.25$
 $= 44 : 66 : 33$

Anil's share in the profit

$$= \frac{33}{143} \times 19.5 = 4.5 \text{ lakh}$$

$$50\% \text{ of Anil's share} = 2.25 \text{ lakh}$$

29. (b)

Let the required amount = p

$$\frac{P}{2} \left[\left(1 + \frac{10}{100} \right)^4 - 1 \right] - \frac{P \times 4 \times 5}{100} = 3205$$

$$\frac{P}{2} \left[\left(\frac{11}{10} \right)^4 - 1 \right] - \frac{P}{5} = 3205$$

$$\frac{P}{2} \left[\frac{14641}{10000} - 1 \right] - \frac{P}{5} = 3205$$

$$\frac{P}{2} \left[\frac{4641}{10000} \right] - \frac{P}{5} = 3205 \Rightarrow \frac{4641P}{20000} - \frac{P}{5} = 3205$$

$$\frac{4641P}{20000} = 3205 \Rightarrow P = \frac{3205}{641} \times 20000 = ₹10,0000$$

30. (a)

Given that,

Number of male employees (M) = 45

Number of female employees (F) = 15

Mean salary of male employee ($\bar{x}_M$)

$$= ₹5000$$

Total number of employees = $(M + F) = 45 + 15 = 60$

Mean salary of employees ($\bar{x}_{MF}$) = ₹4800

Let mean salary of female employee is $\bar{x}_F$

By formula,

$$\bar{x}_{MF} = \frac{M \bar{x}_M + F \bar{x}_F}{(M + F)}$$

$$\Rightarrow 4800 = \frac{45 \times 5000 + 15 \times \bar{x}_F}{60}$$

$$\Rightarrow 4800 \times 60 - 45 \times 5000 = 15 \times \bar{x}_F$$

$$\therefore \bar{x}_F = \frac{4800 \times 60 - 45 \times 5000}{15}$$

$$= \frac{300(16 \times 4 - 50)}{15} = 300 \times 14 = 4200.$$

31. (d)

Suppose number of passengers be x in the starting.

Number of passengers after 1st halt

$$= \left(x - \frac{x}{3} \right) + 120 = \frac{2x}{3} + 120$$

Number of passengers after 2nd halt

$$= \frac{1}{2} \left(\frac{2x}{3} + 120 \right) + 100$$

According to question,

Number of passengers after 2nd halt

$$= \frac{1}{2} \left(\frac{2x}{3} + 120 \right) + 100 = 240$$

$$\Rightarrow \frac{2x}{3} + 120 = (240 - 100) \times 2$$

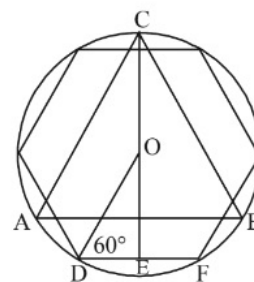
$$\Rightarrow \frac{2x}{3} = 280 - 120 \Rightarrow \frac{2x}{3} = 160$$

$$x = \frac{80}{1} \times 3$$

$$x = 240$$

32. (d)

We know altitude of equilateral $\triangle ABC$ is $\frac{\sqrt{3}}{2} a$.



$$\therefore \text{Length of } OC = \frac{\sqrt{3}}{2} a \times \frac{2}{3} = \frac{a}{\sqrt{3}} = \text{radius}$$

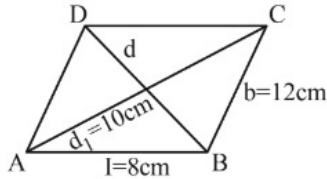
Also, $DF = b \Rightarrow DE = \frac{b}{2}$

In $\triangle ODE$, $\cos 60^\circ = \frac{DE}{OD} = \frac{b/2}{a/\sqrt{3}}$

$\Rightarrow \frac{1}{2} = \frac{\sqrt{3}b}{2a} \Rightarrow a = \sqrt{3}b$

$\therefore a^2 = 3b^2$

33. (d) In parallelogram, $d^2 + d_1^2 = 2(l^2 + b^2)$



$\therefore d^2 + (10)^2 = 2(64 + 144)$

$\Rightarrow d^2 = 2 \times 208 - 100$

$\Rightarrow d^2 = 416 - 100 = 316$

$\Rightarrow d = \sqrt{316}$

$\Rightarrow d = 17.76 \text{ cm}$

$d > 12$

34. (a) Given numbers are 10, 7, 8, 5, 6, 8, 5, 8 and 6
Arrange in ascending order

5, 5, 6, 6, 7, 8, 8, 8, 10

Total term, $n = 9$ (odd)

Now,

(i) Mean = $\frac{5+5+6+6+7+8+8+8+10}{9} = \frac{63}{9} = 7$

(ii) Median = $\left(\frac{n+1}{2}\right)$ th term
 $= \left(\frac{9+1}{2}\right)$ th term = 5th term = 7

(iii) Mode = 8 because of higher frequency term

$\therefore$ Mean = Median

35. (a) $\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}}$
 $= \frac{1}{1+p+\frac{1}{q}} + \frac{1}{1+q+\frac{1}{r}} + \frac{1}{1+r+\frac{1}{p}}$
 $= \frac{q}{1+pq+q} + \frac{r}{1+rq+1} + \frac{p}{1+rp+1}$
 $= \frac{q}{1+pq+q} + \frac{r}{\frac{1}{pq} + \frac{1}{p} + 1} + \frac{p}{p + \frac{1}{q} + 1}$
 $(\because pqr = 1)$
 $= \frac{q}{1+pq+q} + \frac{rpq}{1+q+pq} + \frac{pq}{pq+1+q}$
 $= \frac{q+rpq+pq}{1+pq+q} \quad (\because pqr = 1)$

$= \frac{q+1+pq}{1+pq+q} = 1$

36. (b)
$$\begin{array}{r} 9x^2 - 2 \\ 3x - 1 \overline{) 27x^3 - 9x^2 - 6x - 5} \\ \underline{27x^3 - 9x^2} \\ -6x - 5 \\ \underline{-6x + 2} \\ -7 \end{array}$$

37. (c) $x + \frac{1}{x} = 2 \cos \alpha$
Squaring both sides, then we get

$x^2 + \frac{1}{x^2} + 2 = 4 \cos^2 \alpha$

$\Rightarrow x^2 + \frac{1}{x^2} = 2(2 \cos^2 \alpha - 1)$

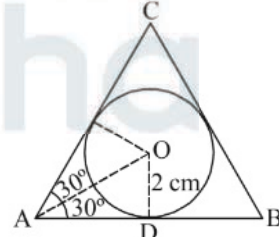
$= 2(2 \cos^2 \alpha - \sin^2 \alpha - \cos^2 \alpha)$
 $= 2 \cos^2 \alpha - 2 \sin^2 \alpha$

38. (b) Required % increase

$= \frac{54}{418} \times 100 = 12.919 \approx 12.92\%$

39. (c) Required % = $\frac{510}{2854} \times 100 \approx 18\%$

40. (a) Since, area of circle = $4\pi \text{ cm}^2$ (given)
 $\Rightarrow \pi r^2 = 4\pi \Rightarrow r = 2 \text{ cm}$



In $\triangle OAD$, $\tan 30^\circ = \frac{OD}{AD} \Rightarrow AD = 2\sqrt{3} \text{ cm}$

Now, $AB = 2AD = 4\sqrt{3} \text{ cm}$

$\therefore$ Area of equilateral $\triangle ABC$

$= \frac{\sqrt{3}}{4} (AB)^2 = \frac{\sqrt{3}}{4} (4\sqrt{3})^2 = 12\sqrt{3} \text{ cm}^2$

41. (c) C.P. = $\frac{100}{(100+5\%)} \times 21000$

C.P. = ₹ 20000

New profit = 15%

New S.P. = $\frac{(100+15\%)}{100} \times 20000 = ₹ 23000$

$\therefore$ To get 15% profit he has to sell an article at ₹ 23000.

42. (c) 10 men in 15 days
 $\Rightarrow$ 1 man can do the work in 150 days
 $\Rightarrow$ 1 man can do twice the work in 300 days
 Similarly, 18 boys in 15 days
 $\Rightarrow$ 1 boy can do the work in 270 days
 $\Rightarrow$ 1 boy can do twice the work in 540 days
 Now, if there are 15 men and 33 boys trying to do twice the work then

$$\left(15 \times \frac{1}{300}\right) + \left(33 \times \frac{1}{540}\right) = \frac{1}{20} + \frac{11}{180} = \frac{9+11}{180} = \frac{20}{180} = \frac{1}{9}$$

$\Rightarrow$ It will take 9 days for 15 men and 33 Boys to do twice the work.

43. (d) Let present age of father's and son's are x and y respectively.

ATCs,

$$(x-5) = 5(y-5)$$

$$x-5y = -20 \quad \dots(i)$$

Again,

$$(x+2) = 3(y+2)$$

$$x-3y = 4 \quad \dots(ii)$$

from (i) and (ii),

$$2y = 24$$

$$y = 12$$

$$\text{and } x = 40$$

$$\text{Ratio of present age} = \frac{x}{y} = \frac{40}{12} = \frac{10}{3} \text{ or } 10 : 3$$

44. (a) $6 * 15 * 3 = \sqrt{\frac{(6+2)(15+3)}{(3+1)}} = \sqrt{\frac{8 \times 18}{4}} = 6$

45. (b) $\frac{W_1 : A_1}{2 : 3} = \frac{W_2 : A_2}{4 : 5} = \frac{W_N : A_N}{5 : 7}$
 $\frac{W_1}{W_1 + A_1} = \frac{2}{5} \quad \frac{W_2}{W_2 + A_2} = \frac{4}{9} \quad \frac{W_N}{W_N + A_N} = \frac{5}{12}$
 $= \frac{72}{180} \quad = \frac{80}{180} \quad = \frac{75}{180}$

$$\begin{array}{ccc} \frac{72}{180} & & \frac{80}{180} \\ & \swarrow \quad \searrow & \\ & \frac{75}{180} & \\ & \swarrow \quad \searrow & \\ \frac{5}{180} & & \frac{3}{180} \end{array}$$

$$\Rightarrow 5 : 3$$

Therefore, the ratio is 5 : 3

46. (d) Here, $SP_1 = SP_2$

$$\Rightarrow 140 CP_1 = 60 CP_2 \Rightarrow \frac{CP_1}{CP_2} = \frac{6}{14} = \frac{3}{7}$$

$$\therefore CP_1 = \frac{3}{(3+7)} \times 8000 = ₹ 2400$$

$$\text{and } CP_2 = 8000 - 2400 = ₹ 5600$$

47. (c) Total number of hand shakes = ${}^{20}C_2$ of those no Indian female shakes hand with male
 $\Rightarrow 5 \times 10 = 50$ hand shakes

No American wife shakes hand with her husband
 $= 5 \times 1 = 5$ hand shakes

$$\Rightarrow \text{total number of hand shakes occurred} = {}^{20}C_2 - (50 + 5) = 190 - 55 = 135$$

48. (d) Probability that first ball is white and second black
 $= (4/6) \times (5/8) = 5/12$

Probability that first ball is black and second white
 $= (2/6) \times (3/8) = 1/8$

These are mutually exclusive events hence the required probability

$$P = \frac{5}{12} + \frac{1}{8} = \frac{13}{24}$$

49. (a) Let radius of the 3rd spherical ball be R ,

$$\therefore \frac{4}{3}\pi\left(\frac{3}{2}\right)^3 = \frac{4}{3}\pi\left(\frac{3}{4}\right)^3 + \frac{4}{3}\pi(1)^3 + \frac{4}{3}\pi R^3$$

$$\Rightarrow R^3 = \left[\left(\frac{3}{2}\right)^3 - \left(\frac{3}{4}\right)^3\right] - 1^3$$

$$= \frac{27}{8} - \frac{27}{64} - 1 = \frac{125}{64} = \left(\frac{5}{4}\right)^3$$

$$\Rightarrow R = \frac{5}{4} = 1.25$$

$$\therefore \text{Diameter of the third spherical ball} = 1.25 \times 2 = 2.5 \text{ cm.}$$

50. (a) Total surface area of the remaining solid = Curved surface area of the cylinder + Area of the base + Curved surface area of the cone

$$= 2\pi rh + \pi r^2 + \pi r \ell$$

$$= 2\pi \times 8 \times 15 + \pi \times (8)^2 + \pi \times 8 \times 17$$

$$= 240\pi + 64\pi + 136\pi = 440\pi \text{ cm}^2$$

51. (b) 'With' is used for 'contentment'. All other options are not valid and do not have any sense.

52. (d) 'Disgrace to' is perfect as per Standard English Usage. 'for' can be used with disgrace as - 'His behaviour is a disgrace for all the love showered by society to his acts.' In this type of question it is very important to read and reread the sentence to get the true sense of the situation described in the statement.

53. (d) Correct use of type I conditional.

54. (b) The word drowsy means half-asleep or sleepy.

55. (a) The author talks about the leisure and peace he was experiencing.

56. (d) The author mentions "In a moment the sole porter emerged from his midday nap".

57. (b) The author mentions a reference to the porter by "operated a signal that clanked noisily into position".

58. (b) I wanted to see whether they had actually read the notes.

59. (c) They made him treasurer because they considered him honest and efficient.
60. (c) 'Palpable' means 'easily noticed'.
61. (c) Usurp means to seize power or position of somebody else without right.
62. (a) 'Outlandish' means odd or strange.
63. (d) 'Absolve' means to state officially that someone is not guilty.
64. (a) 65. (c)
66. (b) Music is often linked to mood. A certain song can make us feel happy, sad, energetic, or relaxed.
67. (a) Music helps one feel different emotions. Based on the mood, a certain song can make us feel happy, sad, energetic, or relaxed.
68. (d) All forms of music may have therapeutic effects, although music from one's own culture may be most effective.
69. (b) Approximately half of India's 1.2 billion people are under the age of 26.
70. (c) The reason for such high numbers can be attributed to lack of economic, social, and emotional resources.
71. (d) By 2020, India is forecasted to be the youngest country in the world, with a median age of 29 years.
72. (d) 73. (b)
74. (c) Relation - Preceding event - succeeding event; as rehearsal precedes performance, engagement precedes marriage, appetite means desire, it may or may not be succeeded by satisfaction and these cannot be counted as events, whereas the given words are events not feelings, applause means appreciation.
75. (b) Relation effect : Cause;
Just as sorrow is caused by death happiness is caused by birth.
76. (b) 77. (a) 78. (d) 79. (b) 80. (c) 81. (b)
82. (a) 83. (b) 84. (c) 85. (d) 86. (a) 87. (a)
88. (d) 89. (c) 90. (c) 91. (a) 92. (d) 93. (c)
94. (a) 95. (d) 96. (a)
97. (a) Ministry of Tribal Affairs partners with Niti Aayog and Facebook are running GOAL for tribal women. The GOAL program will give technical support to the socially and economically marginalized women for their needs to succeed, using the technology they may otherwise have not had access to.
98. (a) Karnataka has topped the India Innovation Index, the first-ever index launched by NITI Aayog to promote competitiveness among Indian states. Karnataka is followed by Tamil Nadu and Maharashtra.
99. (a) Google announced Project Soli in 2015. Since then, Google's ATAP (Advanced Technology and Projects) division has been developing the technology, which can be used in wearables, phones, computers, cars and IoT devices.
100. (d) The Nobel Assembly has decided to award the 2019 Nobel Prize in Physiology or Medicine jointly to William G. Kaelin Jr. (US), Sir Peter J. Ratcliffe (UK) and Gregg L. Semenza (US) for their discoveries of how cells sense and adapt to oxygen availability.

