

CAT FULL LENGTH TEST 8

No. of questions:185

Directions for questions 1 to 30

Each question is followed by 2 statements

Mark (1) if statement I alone is sufficient but statement II alone is not sufficient

Mark (2) if statement II alone is sufficient but statement I alone is not sufficient

Mark (3) if both statements I & II together are sufficient but neither statements alone is sufficient

Mark (4) if each statement alone is sufficient

Mark (5) if statement I & II together are not sufficient.

1. Is the quadrilateral PQRS a square

I. PQ and RS are parallel and equal

II. PR and QS are parallel and equal

1 2 3 4 5

2. Is PQ greater than 2

I. P is greater than $2/Q$

II. Q is positive

1 2 3 4 5

3. What is the volume of a conical vessel ?

I. The perimeter of the base of vessel is 80 cm.

II. The volume of the vessel is $\frac{1}{4}$ the volume of a cylinder with twice the height and the same base

1 2 3 4 5

4. The ratio of the ages of a mother and a daughter is ?

I. Three years ago the ratio was 4 : 1

II. Four years hence, the ratio will be 3 : 1

1 2 3 4 5

5. What is the angle between the hands of a wall clock?

I. The time is between 6 and 7.

II. Half an hour back the angle was 0.

1 2 3 4 5

6. What is the radius of the wheel of a cart .

I. The number of revolutions made by it while travelling from x to y is 2000.

II. If it had travelled one more metre, it would have revolved 500 more times.

1 2 3 4 5

7. What is the length of the shadow cast by a person 4 ft tall standing near a pole.

I. The pole is 10 ft high

II. The person is 5 ft from the pole.

1 2 3 4 5

8. Is $a > b$

I. $a / b = 6 / 5$

II. $a^2 > b^2$

- 1 2 3 4 5

9. There are 10 students in Beverly high school. The average height of 10 students is 170 cm. What is the height of the new student ?

I. The minimum height for admission in the school is 160 cm.

II. After the new student joins the total height is 30 cm.

- 1 2 3 4 5

10. A box contains one rupee coins and 2 rupee coins. What is the total amount in the box if

I. The total number of coins is 100

II. If one rupee coins are replaced by equal number of two rupee coins the amount will increase by Rs.10

- 1 2 3 4 5

11. Who receives the maximum if Rs 300 are divided among x, y, & z.

I. x receives $1/5^{\text{th}}$ of what Y & Z receive together.

II. Y receives $2/3$ of what x and z receive together.

- 1 2 3 4 5

12. Is $x = 3$

I. x is a number such that $x^2 + 6x + 5 = 0$

II. x is a number such that $2x^2 + 3x - x = 0$

- 1 2 3 4 5

13. If a is a positive is a prime number

I. a lies between 15 and 20.

II. A is odd number, not divisible by 5

- 1 2 3 4 5

14. How long did the minister's speech last ?

I. He spoke at an average of 40 words for every 50 seconds

II. He would have spoken for 5 more minutes his speech rate would be 5 words less per minute

- 1 2 3 4 5

15. What is the percentage of post graduate employees in a company.

I. The ratio of post graduates to non post graduates is 2 : 3.

II. The number of non post graduates is 81.

- 1 2 3 4 5

16. If $s = b^2$, What is the value of $b - a$

A. $a = 4$

B. $a + b = 2$

1 2 3 4 5

17. In the 5 term series 2, A, B, C, 8 . What is the value of c, all no. 5 being real

- A. The 3rd term is twice the 1st term
 B. The 4th term is twice the 2nd term

1 2 3 4 5

18. A, B, and C are 3 brothers, What is the order of their ages

- A. The sum of A's age and B's age is twice that of c's age.
 B. 4 Years ago B was twice as old as c.

1 2 3 4 5

19. What is the value of 'x' if 'x' and 'y' ar real no's

- A. $x + y = 2$
 B. $x^2 - y^2 = 12$

1 2 3 4 5

20. What is the distance from mumbai to Calcutta in kg.

- A. Mumbai is 50km from Delhi.
 B. Delhi is 25 km from Calcutta.

1 2 3 4 5

21. The aggregate score of 3 players x, y & z was 126. What was the score of each player

- A. Y & Z together made 72 runs.
 B. X & y together made 55 runs.

1 2 3 4 5

22. The value of an estate in Jan 1990 started declining in such a way that at the end of each year, it was worth 1 / 2 its value in the beginning of the year. What was its worth in end December 1995

- A. It was worth Rs 24000 in beginning January 1990.
 B. It was worth Rs.8000 in end December 1993.

1 2 3 4 5

23. If a is an integer , is a / 2 an even enteger

- A. a is a multiple of 2
 B. a is a multiple of 4

1 2 3 4 5

24. Is $P = R$? P, Q , R are real no.s

- A. $P - Q = Q - R$
 B. $P - 2R = R - 2Q$

1 2 3 4 5

25. What is the slope of the line in (x -Y) plane

- A. Line passes through origin.
 B. Line passes through (16, 20).

1 2 3 4 5

26. How long will Jay take to complete the work.

- A. Jay and Jayvanti complete the work in 15 days.
B. Jay takes 8 days more than Jayvanti to complete the work.

1 2 3 4 5

27. What is the value of x ? x is a real no.

- A. $x^2 - x - 6 = 0$
B. $2x^2 - x - 15 = 0$

1 2 3 4 5

28. What is the sum of 3 real no's

- A. The product of the no's is 600
B. The average is 60.

1 2 3 4 5

29. Is $a > b$? a, b are real numbers

- A. $16a = 12b$
B. $a = b + 2$

1 2 3 4 5

30. What is p , if P & Q are real no's

- A. $p^2 + q^2 = 36$
B. $pq = 12$

1 2 3 4 5

Directions for questions 31 to 35 : For each question, choose the pair of words that have a relationship between themselves similar to relationship between the given pair of words.

31. SCALPEL : SURGEON

- laser : agronomist
 syringe : geologist
 magnet : ecologist
 telescope : astronomer

32. CORNUCOPIA : ABUNDANCE

- fortune : success ensign : ship mace : authority unicorn : myth

33. LABYRINTH : TORTUOUS

- ornament : decorative
 portrait : accurate
 editorial : refutable
 poster : startling

34. DIPLOMAT : TACT

- politician : flamboyance
 inventor : ingenuity

- accountant : flexibility
- merchant : catalogue

35. GEOLOGIST : GNEISS

- entomologist : insects
- meteorologist : asteroid
- herpetologist : liver
- botanist : zoo

Directions for questions 36 to 41: From the following sets of four sentences, choose that sentence as the answer which is the most appropriate and concise grammatically, semantically and logically.

36. There is Mr.Khan, who they say is the best portrait painter in town.
 There is Mr. Khan, whom they say is the best portrait painter in town.
 There is Mr.Khan, who they say is the best portraits painter in town.
 Mr. Khan, who they say is the best portrait painter in town, is there.
37. She died in the village where she was born
 She was born in the village where she has died.
 The village she died in was where she was born.
 In the village where she was born, she died.
38. I like to see a smiling face.
 I like to see a face with a smile on it.
 I like to see faces that smile.
 Smiling faces are what I like.
39. The firm was fortunate to secure the Rani's patronage.
 The firm was fortunate in securing the Rani as a patron.
 The firm was fortunate to secure the Rani's as a patron.
 The firm was fortunate in securing the Rani's patronage.
40. She finished her exercise and then put away her books.
 Having finished her exercise, she put away her books.
 She put away her books on finishing her exercise.
 The exercise over, she put away her books.
41. The population of China is greater than any town in India.
 More people live in China than any town in India.
 Less people live in an Indian town than in China.
 The population Of China is greater than that of any town in India.

Directions for questions 42 to 44 : Each of the following sentences has been split into four parts. You have to mark that part which contains a mistake.

42. She has a wardrobe.
 of wonderfully carved wood,
 and which has been
 in his family for generations.

43. Nothing is so easy and inviting
 as the retort of abuse and sarcasm,
 but it is a paltry.
 and unprofitable exercise.
44. Beside being fined,
 She was
 sentenced to
 a term of imprisonment.

Directions for questions 45 to 50: For each question, select the word among the given choices which is closest in meaning to the given word.

45. CONDESCEND :
 raise deign encourage lack
46. DEFERENCE :
 gap harm regard confidence
47. GLOWER :
 brighten fascinate scowl reduce
48. PROBITY :
 discovery search expedition integrity
49. MELLOW :
 soften darkness numerous grind
50. PERNICIOUS :
 productive conscious destrctive wild

Directions for questions 51 to 52: For each question given below, select the word among the given choices which is nearly opposite in meaning to the given word.

51. VITIATE :
 improve poison sharpen discover
52. CONGENIAL :
 acquired solemn unpleasant hot

Directions for questions 53 to 55 : For each question below, select the word among the given choices which is nearly opposite to it in meaning.

53. IMPECCABLE
 faulty unfriendly vulnerable irritating.
54. SMUG
 complacent artificial dissatisfied sullen.
55. GALLANT
 uncouth sticky manly glorious

Directions for questions 56 to 60 : For each question, choose the pair of words which have a

relationship between themselves which is similar to the relationship between the given pair of word.

56. APIARY : BEES

- pen : sheep shed : cows sea : fish aviary : birds.

57. DEITY : TEMPLE

- crucifix : church sculpture : museum typewriter : office equipment : factory

58. WATCH : HOURGLASS

- tank : car motorcycle : scooter rifle : bow sun : planet

59. OPHTHALMOLOGY : CARDIOLOGY

- car : liver head : foot eye : heart love : passion

60. PETROL : GASOLINE

- motor : car coal : coke torch : light lorry : truck.

Directions for questions 61 to 65 : In each of the following questions a sentence has been split into four parts. Mark the part that has an error in grammatical usage.

61. The student who you
 thought so highly of,
 c. failed to win the first prize
 d. in the inter-school drawing competition.
62. When in town, my intension
 was to visit you,
 but the astonishing variety of sights
 have usurped my time.
63. Automobile's insurance is more expensive for those
 students who are able to maintain a good record
 in driving because they have a
 lower risk than average or below average students.
64. A metal detector buzzes not only
 b. when firearms are located but also
 c. when smaller metal objects as
 d. keys and belt buckles are found.
65. a. The prettiest girl in the class
 b. with long brown hair and
 c. brown eyes is loved
 d. by everyone who knows.

Directions for questions 66 to 70 : Fill in the blanks with the correct usage from the four choices given below each of the following sentences.

66. She is a _____, as disinclined to base her future on impractical dreams as she would be to build castles on shifting sand.

- pragmatist pragmatical pragmatic pragmatism

67. Quality control studies shows that employees work the most _____ when they are involved in total operation rather than only one part of it.

- efficient efficiency effective efficiently

68. This garden has been preserved in all its pristine wildness _____ visitors in future years may see how people lived in the eighteenth century.

- thus so that because hence.

69. Dr. Deepa will receive _____ special honour at the function to be held on the fifteenth of this month at the vice-chancellor's residence.

- some the a his

70. Your _____ tactics may compel me to cancel the contract because we have to complete the work on time or face the consequences.

- dilated dilating diluting dilatory

Directions for questions 71 to 75 : Choose the most appropriate word/phrase to complete the given sentence with particular reference to grammar, syntax and style.

71. I was afraid of missing the bus, so walked _____ I reached the bus-stop ten minutes ahead of time.

- too fast that fast enough for quite fast and so fast that.

72. The park _____ neglected, but it is a favourite picnic spot today.

- was had earlier been had before been which was once.

73. Being _____, he never wasted his time on futile exercises.

- busy pragmatic meaningful resourceful

74. He is much too _____ in his writings; he writes a full page when a single sentence would suffice.

- laconic generous verbose assiduous

75. The party leader did expect some criticism of his decision, but was taken aback by the near _____ of the members.

- mutiny unanimity mutilation momentum

Directions for questions 76 to 80 : Each question has a phrase or statement followed by four choices of words. Select the word which is closest in meaning to the given phrase or statement.

76. General act of forgiveness on a national occasion

- benediction emancipation investiture amnesty

77. A massive moving entity

- miasma juggernaut jamboree typhoon

78. A contraption used during French Revolution for beheading people.

- guinea gabardine guillotine icicle.

79. A gentle breeze

- southwind squall draft zephyr

80. Feeling a guilt

- reparation
 remorse
 recuperation
 refulgence

81. A person who assails cherished beliefs

- ruffian
 iconoclast
 atheist
 rebel

In a survey conducted to know how many people know the above language i.e French, German and Spanish a test was conducted by asking people. This is the additional information.



1. people who know German & French is 100
 2. people who know French & Spanish is 150
 3. People who know Spanish & German is 200
 4. People who know all three is 100
82. How many people know exactly one of the three languages
- 1000
 900
 600
 800
83. How many people are there who know exactly two languages
- 500
 450
 600
 550
84. If a person knowing atleast one of the languages is picked at random what is the probability that he will know exactly two languages
- $\frac{2}{7}$
 $\frac{4}{5}$
 $\frac{2}{3}$
 $\frac{9}{31}$
85. If a person knowing atleast one of the languages is, picked randomly what is the probability that he will speak exactly one language.
- $\frac{2}{7}$
 $\frac{2}{3}$
 $\frac{20}{31}$
 $\frac{9}{31}$
86. If 1550 people are interviewed the number of people who know none of the three languages is
- 0
 200
 150
 100
87. If 1550 people are interviewed what is the number of people who know atleast one .
- 900
 600
 1200
 1550
88. The number of people knowing tow or more languages is
- 1000
 550
 200
 700
89. How many people know only French
- 650
 900
 800
 700
90. How many people know only German
- 600
 500
 450
 200
91. How many people know only Spanish
- 600
 150
 500
 200
92. People knowing only French or only German or both French and German
- 600
 450
 950
 900

93. People knowing only French or only Spanish or both of them

- 800 850 900 950

94. How many people know German and French and French and Spanish but not all three

- 300 200 350 250

95. If the people knowing two or more languages if one is picked randomly the probability he will know German is

- $\frac{2}{3}$ $\frac{4}{7}$ $\frac{8}{11}$ $\frac{5}{8}$

96. How many people know German and Spanish, German only and Spanish Only

- 650 850 950 550

Passage – 2

Reading a story-book is, for a child as for an adult, a way of discussing what might happen; to ask what if, in the open dialogue of speech, or the concealed dialogue of imagination. Reading and writing create a mental space for thinking, the space that children inhabit early in their play. From studies of how children's language develops we learn that individuals boys and girl follow different patterns in speech and in thought as they learn to make sense of the world and to reflect on their lives. There is no straight line to abstract thinking. Language and thinkings meet and change each other at the bumpy intersections of events. There are, however, schooled ways of regulating thinking, conventions for writing about sciences or poetry, for example, that children have to learn. By learning to write and read like a poet or a scientist, pupils in school learn the conventions of poetry and the discourse of the sciences, which control what counts as thinking in these roles. They join the group of those whose literacy they learn, so their thinking becomes a social as well as an individual intellectual activity. Young thinkers look for apprenticeships with those whose words and thoughts interest them. The same holds for footballers as well as photographers, actresses as well as accountants.

97. The disciplined ways of regulating thinking in a child are

- familiarity with elementary terms in science and rhyming.
 learning to follow the rules of the games when the child is at play.
 learning conventions for writing about science or poetry
 developing good handwriting by copy book writing.

98. As children develop ability to regulate their thinking,

- they begin to imitate the ways of their parents,
 they join other groups and learn their ways of thinking and talking.
 they make their thinking a social and individual intellectual activity
 [2] and [3] only.

99. Young thinkers develop into budding footballers and actresses by

- opting for pre-professional courses at school.
 joining training institutes for these roles.
 constant exposure to the achievement of their masters in visual media.
 serving apprenticeship with those having the same aptitude for the activity.

100. When we read a story for a child,

- we create word-picture that stimulate the child's imagination.
 we create that 'what-if' possibility in the story context to stir up the child's imagination.
 we teach the child to relate its own experience to the world outside.
 all of the above .

101. The mental space for thinking that children develop through reading and writing

- supplements their mechanical skills
- is created when are at play in the early stages.
- is discourages by parents by insistence on formal learning process
- helps them to develop creatively in painting, music, etc.

Passage – 3

Captive breeding is a method of breeding in Zoos or reserves, those species of animals, plants, birds, and fish that are close to destruction. The breeding programmes take a great deal of care, particularly during the transition back to the wild, and there have been some notable successes, the red Wolf, the black-footed ferret, the rhinoceros, the California condor, the golden lion tamarin monkey which is a distinct species of monkey, and the bearded vultures of the Alps. Great care is taken, while the animals are in bondage, to keep them as separate as possible in surroundings that resemble as much as possible the original habitats. Efforts are made to ensure that they do not become too accepting of humans. In California, at the Animal Planet Research Centre, elaborate steps are taken to ensure that the chicks of the bald eagle, which is bred in bondage, do not "stamp" humans as parents, which would mean they could not be able to survive alone in the world. The chicks are fed via a glove puppet with an eagle head. Programmes to prepare animals for their release include public meetings to reassure local human population and training for the animals in how to go about hunting live prey in readiness for the wild. Once released, the animals are kept in reserves and a strict monitoring programme is maintained, using radio collars in some cases so that deviating animals can be returned to the reserves or taken back into bondage if they are thought to be in danger.

102. Breeding animals in bondage must ensure that they do not become too trusting of humans because

- After being taken to the reserve, they must be able to forage for food on their own.
- When released in the wild, they must be able to survive, trusting their own instincts.
- in their natural habitat later they must be able to protect themselves from enemies.
- all of the above.

103. In order that the chicks of the bald eagle in bondage do not "stamp" humans as parents,

- they are fed through a glove puppet with an eagle head.
- they are given live prey to feed on.
- pre-recorded sound from the eagle head simulates its scream.
- none of the above.

104. Once released in the wild,

- Some animals are made to carry radio collars.
- a strict watch is kept on the animal's reflexes.
- Animals are kept in reserves with strict monitoring programmes.
- [1] and [3] only.

105. Programmes to prepare captive animals for release in the wild, include all of the following except.

- Training the animal in how to go about hunting live prey.
- Public meetings to inform the local human population.
- Helping animals to sharpen their natural instincts through Pavlovian approach.
- [1] and [2] only.

106. Notable successes in captive breeding include all of the following, except

- the black-footed ferret.
- the Californian condor.

- The cottontail rabbit.
- The golden lion tamarind monkey.

107. To which of the following disciplines does the passage correctly relate ?

- Natural history
- Ecology
- Environment
- Zoology

Passage – 4

Galileo's pioneering achievements look small besides the enormous accomplishments of the succeeding generation of physicists – primarily, of course, those of Sir Isaac Newton. His mathematical tools, improved as they were over those of medieval scientists, were still rudimentary and awkward. He had neither analytic geometry nor calculus to assist him in the description of his ideas and discoveries. Despite the incalculable help of the telescope in observation of the heavens, he lacked data to support his theories. Many of the experiments he described were performed only in his mind in order to illustrate theories, which had been formed without them. But none of this detracts from Galileo's supreme position as a scientific revolutionary; his conception of the mathematical expression of physical facts and the abstract nature of physical laws makes his work a watershed in Western history. Galileo did not supply conclusive answers to physical questions – his experimentation and mathematics were too faulty - but like Copernicus, he raised questions of tremendous significance.

108. State which of the following statements is false in terms of Galileo's contributions to science.

- He foreshadows Einstein's Theory of Relativity.
- He was a scientific revolutionary who laid the foundation of modern science.
- He developed the conception of explaining physics facts in mathematical terms.
- The question he raised helped latter day scientists.

109. With his discovery of telescope, Galileo could have achieved more than the later age scientists, but for the fact that.

- He had to arrive at his theories without performing experiments.
- He lacked the data to support these theories.
- He had to reckon with the Church, which opposed his theories.
- All of the above except [3].

110. State which of the following statements is true.

- Galileo and Newton were contemporaries.
- Galileo's mathematics and experimentation were not good enough to let him give definite answers to physical questions.
- Newton discovered the telescope.
- The tools used by Galileo were the same as those by medieval scientists.

111. The generation of scientists who succeeded Galileo had better mathematical tools in

- quantum analysis
- calculus
- analytical geometry
- [2] and [3] only

112. According to the writer, Newton's achievement look bigger than Galileo's for the following reasons except

- Newton's discoveries had the advantage of using Calculus and analytic geometry.
- Newton had the advantage of using Galileo's pioneering work as basis for his own discoveries.
- Newton postulated the laws of motion, which Galileo did not.
- Newton could perform experiments for his theories, unlike Galileo.

113. The writer's assessment of Galileo's scientific achievements is

- analytical but slightly biased.

- analytical, unbiased, and extensive,
- not exhaustive, omits a few vital facts.
- within the given space, exhaustive, analytical and unbiased..

114. How many bricks each measuring 50 cm x 20 cm x 12 cm will be needed to construct a wall be needed to construct a wall 16m long, 12m high and 45 cm thick ?

- 14400 12200 12400 6300

115. A powder tin has a square base with side 16 cm and height 28 cm. Another tin has a circular base with diameter 16 cm and height 28 cm. Find the difference in their capacities.

- 1536 cm³ 162 cm³ 1253 cm³ 2500 cm³

116. How many bullet can be made out of a lead cylinder 28 cm high and 12 cm radius, each bullet being 6 cm in diameter.

- 12 15 13 2

117. A well with 28 m inside diameter is dug 16 m deep. The earth taken out of it has been evenly spread all around it to a width of 21 m to form an embankment. Find the height of the embankment

- 16.6 cm 12.3 cm 15.6 cm none of these

118. Out of a no. of electronic items, a person purchases 50% coloured TV's 10% of these are found to be defective. The % of defective T.V's in all is

- 5% 10% 12% 50%

119. 10% income of x is equal to 30% income of y and 20% income of y is equal to 40% income of Z. If Z's income is Rs. 4000, then total income of X, Y, Z (in RS.) is

- Rs. 36000 Rs. 18000 Rs.24000 Rs.8000

120. The average weight of a class of 48 students is 70 kg. If the weight of the teacher be included the average rises by 800 gms. Find the weight of the teacher.

- 109.2 kg 229.3 kg 209.24 199.3 kg

121. A man Covers a distance from a town. A to a town B on scooter at 60 km/hr and rides back from B to A at 40 km /hr. Find his average speed during the whole journey.

- 48 km/hr 64 km/hr 26 km/hr 13 km/hr.

122. A copper sphere of diameter 36 cm is drawn into a wire of diameter 8 mm. Find the length of the wire.

- 486 m 256 m 226 m 525 m

123. The radius of the base of cone is 4.2 cm and its height is 10 cm. It is melted and recasted into a sphere. Find the radius of the sphere.

- (sqrt 44.1 cm) (sqrt 22.4 cm) (sqrt 1.2 cm) none of these

124. How many iron rods, each of length 14 m and diameter 4 cm can be made out of 0.88 cubic metre of iron

- 400 200 300 100

125. On decreasing the price of fans by 15 % the sales increased by 10%. What is the effect on money receipt.

- 6.5 % 8.5 % 7% 16.5%

126. In a class, the no. of boys is more than the no. of girls by 24 % of the total strength the ratio of boys to girls is

- 31 : 19 21: 36 25 : 33 5 : 3

127. The mean of 39 observations is 8. If one more observation of 48 is added to the data, the new mean will be

- 9 8 7 2

128. Find 3 no. in the ratio 4:6:10, the sum of whose squares is 608.

- 8,12&20 5,10, & 15 2,5 & 64 4 , 8 & 16

129. A & B started a business investing Rs. 25,000 & Rs. 20,00 rly. Find the share of each out of an annual income of Rs. 9000

- 4000 5000 9000 10000

130. X,Y,Z hire a meadow for Rs. 5040. If x puts in 40 cows for 16 days, y puts 50 cows for 16 days & Z puts 32 cows for 18 days, find the rent to be paid by x.

- Rs.2000 Rs. 2200 Rs. 2500 Rs. 3500

131. If the S.P of 10 pens is the same as the C.P of 15 pens find gain%

- 50% 20% 25 % 10%

132. If X is an odd integer, which of the following must be odd?

1. $2x + x$ II. $x + x + x$ III. $x * x * x$

- I only II only III only I, II, and III

133. The strength of a class is 36 of whom 33.3% are graduates and others are non-graduates. There are girls of whom 70% are non graduates. How many male graduates are there in the class.

- 8 9 10 12

134. Thickness of a rectangular box is P units. Its breadth is 4 more than the thickness and length 2 more than the breadth. What is the volume of the box.?

- $p^2 + 10p$ $p^3 + 10p^2 + 24p + 6$ $p^2 + 10p + 24$ $p^3 + 10p^2 + 24p$

135. The true discount on a bill of Rs 600 is Rs 60. The banker's discount is :

- Rs 66.67 Rs 67.5 Rs 65 Rs 64.6

136. What rate % does a man get for his money when in discounting a bill due 6 months hence, he deducts 2% of the amount of the bill.

- 4.08% 5.2% 4% 5%

137. If the radius of a circle is decreased by 25% its area will decrease by

- 93.75% 75% 82.25% none of these

138. The area of a hexagon whose one side is 3m, is

- $6(\sqrt{3})$ $27(\sqrt{3}/2)$ $6\sqrt{3}/4$ $5\sqrt{3}/16$

139. A circular wire of radius 35 cm is cut and bent in the form of a rectangle where sides are in the ratio 2 : 3. The smaller side of rectangle is

- 66 22 44 33

140. A speaks the truth in 50% of the cases while B speaks the truth, in 75% of the cases . In how many % of the cases are they likely to contradict each other if they are describing a given blazer

- 60% 75% 25% 50%

141. $47C_4 + 5S_{r=1}^{52} - rC_3 = ?$

- 51c₃ 52 c₄ 52 c₃ 51c₄

142. XYZ is a triangle with vertices X (8, -5), Y(6, -2) and Z,(6, 3). If XA is one of its medians, then the length of this median is

- (sqrt232) (sqrt 532) (sqrt 112) (sqrt 123)

143. An aeroplane travels distances of 5000 km, 2400km & 1000 km at the rate of 1000km/hr 800 km/hr and 500 km/hrrly. Find the average speed.

- 840 480 420 240

144. A Scooterist travels for 12 hours, the 1st half of the journey at 120 kmph and the rest as 96 kmph . Find the total distance travelled by him.

- 1280 km 1520 km 125 km 1850m km

145. A train 360 m long is running with a speed of 108 kmph. In what time will it pass a tunnel 1080 m. long.

- 48 sec 50 sec 20 sec 15 sec

146. A man is standing on a railway bridge which is 50 m long . The finds that a train crosses the bridge in 4 ½ seconds but himself in 2 seconds. Find the speed of the train

- 72 km/hr 60 km/hr 24 km/hr 20 km/hr

147. 2 Trains 264 m & 216 m long are running towards each other on parellel times one @ 64 kmph & another at 80 kmph. In what time will they he clear of each other from the moment they meet

- 12 sec 10 sec 15 sec 2 sec

148. A man can row upstream at 16 km/hr & downstream at 21.2 km/hr. Find the rate of current

- 2.6 km/hr 1.3 Km/hr 2.5 km/hr 5 km/hr.

149. In a stream running at 2 kmph a boat goes 10 km upstream and back again to the start in 55 minutes. Find the speed of boat in still water.

- 22 km/hr 24 km/hr 26 km/hr none of these

150. The ratio of Maya's age & Kanta's age is 3 : 5 & sum of their ages is 80 yrs. The ratio of their ages after 10 yrs will be

- 2: 3 1 : 2 3 : 5 5 : 3

151. The ratio of the ages of mother and son at present is 5 : 1 . After 5 yrs ratio will become 5 : 2 . The present age of son is

- 5 yrs 10 yrs 15 yrs 35 yrs.

152. A ladder 20 metres long reaches windows (on the opposite sides of the road) Which are 16 metres and 12 metres high. The Width of the road is

- 28 m 25 m 12 m 50 m

153. One litre of water is added to 10 litres of a 40% solution of alcohol in water. What is the final strength of the alcohol.

- 36% 25% 20% 16%

154. A dealer purchased a fan for Rs 240 and sold it for cash so as to gain 50% on his outlay. At what price did he sell the article.

- Rs 360 Rs 240 Rs 300 Rs 250

155. The parellel sides of an isosceles trapezium are 21 cm & 9 cm length & a lateral side is 10 cm.

Find its area

- 120sq cm 40sq cm 60sq cm 145sq cm

156. Solve $\sin^4 Q + \cos^4 Q = 1$

- 0 or 90° 0° 90° 35°

157. I used to save 20% of my income . When my income was raised by 50% and if I should save the same amount as before , what per cent of my income can I afford to spend.

- 86.67% 85% 83.33% 80%

158. If $p + q + r = 0$, then value of $(p^2 / qr + q^2 / rp + r^2 / pq)$ is

- 1 1 0 3

159. If $f(x)$ is divided by $(3x + 4)$, the remainder is

- $-3/2$ $2/3$ $-4/3$ $1/2$

160. A man has some hens and buffaloes. If the number of heads be 24 and the number of feet equal to 76, the number of hens will be

- 10 14 12 15

161. The difference between the greatest number and the smallest number of 6 digits using all but once is

- 467805 440865 444088 530865

162. The denominator of a rational number is more than its numerator. If the numerator is increased by 6 and the denominator is decreased by 4 we obtain 3.

- $1/5$ $2/6$ $7/11$ $3/7$

163. Two numbers are less than a third number by 25% and 30% respectively. How much per cent is the second number less than the first ?

- 5% 6.67% 3.33% 10%

Directions for questions 164 to 168 : Each question contains six statements followed by four sets of combinations of three. Choose the set in which the statements are logically related.

164. 1. Some spanials are not good hunters.
2. All spanials are gentle dogs.
3. No good hunter is a gentle dog.
4. All gentle dogs are spanials.
5. Some gentle dogs are not good hunters.
6. Some spaniels are good hunters.
 125 346 265 561

165. 1. All Romans are humans.
2. Some humans are Romans.
3. Some Romans are not humans.
4. All athenians are Romans.
5. Some athenians are not Romans.
6. All athenians are humans.
 563 346 146 461

166. 1. Some women are undependable.

2. All women are undependable.
 3. No undependable person is fit for employment.
 4. All who are fit for employment are women.
 5. Some undependable persons are fit for employment.
 6. No one who is fit for employment is a woman.
- 236 165 246 631

- 167.1. All introverts are paid well.
2. All doctors are paid well.
 3. Some of those who are paid well are not doctors.
 4. No doctor is an introvert.
 5. Some introverts are doctors.
 6. Some introverts are paid well.
- 125 563 463 421

- 168.1. All academicians are witty.
2. No academician is a minister.
 3. All ministers are poor.
 4. Some poor people are not ministers.
 5. All poor people are academicians.
 6. No poor person is a minister.
- 136 256 124 356

Directions for questions 169 to 173: Assuming the statement to be true point out if the inference is (a) True, (b) False or (c) Uncertain.

169. Statement : Only able-bodied women are recruited.
Inference : All who are recruited are able bodied.
- a. b. c.

170. Statement : No political party is honest.
Inference : No honest organization is a political party.
- a. b. c.

171. Statement : Only the literate can tackle this situation.
Inference : No illiterate person can tackle this problem.
- a. b. c.

172. Statement : Mad horses are dangerous.
Inference : Nothing dangerous is a mad horse.
- a. b. c.

173. Statement : The poor are unhappy.
Inference : The unhappy are poor.
- a. b. c.

Directions for questions 174 to 178 : In each of the following arguments one premiss is missing. Pick out from the answer-choices the premiss which will complete the argument without imparting any fallacy to it.

174. Mukesh is shrewd because he is a politician.
- Only politicians are shrewd.
 All politicians are shrewd.
 All shrewd are politicians.
 No politician is shrewd.

175. She is lucky because she has won the prize.
- All who win the prize are lucky.
 - Only those who win the prize are lucky.
 - All lucky win the prize.
 - Some lucky have won the prize.
176. He is liked by all because he is very talkative.
- All talkative are liked by all.
 - Only talkative are liked by all.
 - Those who are liked by all are talkative.
 - None of these.
177. This woman has children so she is a mother.
- Some who have children are mothers.
 - Some mothers have children.
 - All mothers have children.
 - All who have children are mothers.
178. She cannot be sacked because she is efficient.
- No efficient person can be sacked.
 - Some efficient persons cannot be sacked.
 - Some who are sacked are not efficient.
 - All sacked persons are efficient persons.

Directions for questions 179 to 183 : Each question contains six statements followed by four sets of combinations of three. Choose the set in which the statements are logically related.

179. 1. Some snakes are poisonous.
2. All snakes are nocturnal.
3. All poisonous creatures are snakes.
4. All poisonous creatures are nocturnal.
5. Some snakes are nocturnal creatures.
6. Some nocturnal creatures are poisonous.
- 165 236 241 235
180. 1. Some excessive drinkers are managers.
2. All excessive drinkers are debtors.
3. No debtor is a manager.
4. All debtors are excessive drinkers.
5. No manager is an excessive drinker.
6. Some managers are debtors.
- 162 352 235 146
181. 1. No minister is honest.
2. All judges are honest.
3. Some judges are honest.
4. Some honest persons are ministers.
5. Some judges are not ministers.
6. No honest person is a judge.
- 165 345 135 251
182. 1. Some smokers are doctors.
2. No smoker is a doctor.

3. All doctors are non-smokers
 4. No non-smoker is a smoker.
 5. Some doctors are non-smokers.
 6. All doctors are smokers.
- 154 245 364 342

- 183.1. Some animals are not trained.
 2. Elephants are trained animals.
 3. All trained animals are in circus.
 4. Some trained animals are elephants.
 5. Some elephants are in circus.
 6. All animals in the circus are trained.
 7. Elephants are in circus.
- 327 674 253 456

Directions for questions 184 to 185 : Given below is a capitalised pair of words which bear a certain relationship to each other. From the alternatives, choose the pair that bear the same relationship as the capitalised pair.

184. DESIGN : ABSTRACT

- apple : pear
 rain : drizzle
 drink : mango
 swirling : nebulous

185. FACADE : BUILDING

- visage : person
 screen : television
 hands : watch
 personage : importance

Explanatory answers to CAT Exam paper VIII

1. Statement I and II alone is not sufficient as it may be a parallelogram and not a square combining Both the statements PQRS may be either square or parallelogram Hence [5]
2. Both the statements together give $pq > 2$
3. Statement I alone is not sufficient as we do not know the height of the vessel. Statement II alone is not sufficient as the volume of the cylinder is unknown. Both the statements together are insufficient Hence [5]
4. Combining both the statements we can find the ratio Hence [3]
5. Statement I alone is not sufficient as we do not know the position of the minute hand Statement II alone is not sufficient . But by combining both the statements we can find the angle. Hence [3]
6. Statement I alone is not sufficient Statement II gives $500 * 2p r = 2000$ Hence [2]
7. Statement I is not sufficient as we do not know the distance of the person from the pole Statement II alone is not sufficient as we do not know the height of the pole. Both the statements are required to answer the question.
8. Statement I alone is not sufficient because if $a = 6$, and $b = 5$ then $a > b$ but if $a = -6$ and $b = -5$ then $a < b$ Statement II alone is insufficient as a can be less or greater than y depending on values

of a and b as positive or negative .

Both the statements together are insufficient Hence [5]

9. Statement II alone is sufficient as we have the total height of all the students we can find out the height of the addition student Hence [2]

10. Both the statement together are not sufficient as we don't know the distribution of the coins. Hence [5]

11. Statement I alone is insufficient as we do not know the respective shares of y & z Statement II alone is not sufficient as we don't know the respective shares of x & z combining Both the statement we can get who has the maximum share.

12. Statement I & II alone give 2 values of x hence are insufficient combining both the statements we Have 4 values for x Hence [5]

13. Both the statements together give $A = 17$ & 19 . Therefore a is prime number. Hence [3]

14. Statement I alone is not sufficient as we do not know the number of words spoken Statement II is not sufficient, as we do not know the speech rate. Both the statements together give the time. Hence [3]

15. Statement I alone is sufficient as it gives the number of post graduates in the firm equal to $2/5 * 100$
Hence [1]

16. From statement (1) $b = \pm 2$. But the exact value cannot be determined. Hence [3]

17. Even using both statements we can't find the value of c. Hence [5]

18. From statement (1) $A + B = 2C$
We cannot conclude who is elder to whom.
From statement (2) $B - 4 = 2(C - 4)$

19. From statement (1) $x + y = 2$ --à (1)
From statement (2) $(x + y)(x - y) = 12$
 $2(x - y) = 12$
 $x - y = 6$ ---à (2)
By solving both the equations simultaneously are find the value of x.
Hence [3]

20. Since the question does not specify the direction where the cities be distance cannot be determined. Hence [5]

21. From statement (1) $y + z = 72$
 $X + 72 = 126$
From statement (2) $x + y = 55$
 $55 + Z = 126 \setminus Z = 71$
Hence the score of each player can be found using both statements.
Hence (3)

22. From statement (1) , value = $24000 * (1/2)^6$
From statement (2) value + $8000 * (1/2)^3$
So, both statements can solve the question independently .
Hence [4]

23. From statement (2) $a = 4 k$
 $a / 2 = 4 k / 2 = 2 k$ which is definitely even
 Hence [2]

24. From (1) $2Q = p + r$
 From (2) $p - r = - 2q + 2r$
 $P + 2q = 3r$
 $2q = 3r - p$
 $3r - p = p + r$
 $2r = 2 p$
 $p = r$
 Hence [3]

25. From (1) & (2)
 Slope = $y_2 - y_1 / x_2 - x_1 = 20 / 16 = 5 / 4$
 Hence [3]

26. From both statements we can find the answer . Hence [3]

27. From (1) $x^2 - 3x + 2x - 6 = 0$
 $x (x - 3) + 2 (x - 3) = 0$
 $x = 3$ or $x = -2$
 From (2) $x = 3$ or $x = - 5 / 2$
 combined $x = 3$
 Hence [3]

28. From (1) $xyz = 600$ à no relevance.
 From (2) $x + y + z / 3 = 60$
 $X + y + z = 180$
 Hence [2]

29. It is clear from statement (2) that $a > b$
 Hence (2)

30. Combining (1) & (2)
 $(p + q)^2 = 36 + (2 * 12) = 36 + 24$. But exact value of p cannot be determined
 Hence (5)

31. [d] 32. [a] 33. [a] 34. [b] 35. [a] 36. [a] 37. [a] 38. [a] 39. [d]
 40.[c]
 41.[d] 42.[c] 43.[b] 44.[a] 45.[b] 46.[c] 47.[c] 48.[d] 49.[a] 50.[c] 51.[a]
 52.[c] 53.[a] 54.[c] 55.[a] 56.[c] 57.[a] 58.[c] 59.[c] 60.[d] 61.[a] 62.[d]
 63.[a] 64.[c] 65.[d] 66.[a] 67.[d] 68.[b] 69.[c] 70.[d] 71.[d] 72.[b] 73.
 [b] 74.[c] 75.[a] 76.[d] 77.[b] 78.[c] 79.[d] 80.[b] 81.[b]

Only French = $900 - 100 - 150 - 100 = 650$
 Only German = $600 - 100 - 200 - 100 = 200$
 Only Spanish = $600 - 100 - 150 - 200 = 150$
 total = $650 + 200 + 150 = 1000$ Hence [a]

1) People who know exactly one of Mis = 1000
 2) People who know only French & German = 100
 People who know only Fre & Span = 150
 People who know only Span & German = 200
 People who know exactly 2 languages = 450
 3) People who know all 3 languages = $100900 + 600 + 600 - (150 + 100 + 200) - 2 \times 100 = 1550$

82. a

83. b

84. d Total = 1550 People who speak exactly 2 languages = 450 \ probability = $450/1500 = 9/31$

85. c :- Total 1550 \ probability = $1000/1550 = 20/31$

86. a People who know atleast 1 language is $900 + 600 + 600 - (150 + 100 + 200) - 2 \times 100 = 1550$
People on interview 1550 \ $1550 - 1500 = 0$

87. d

88. b People knowing two or more languages knowing exactly

2 languages + knowing all 3 languages
\ $450 + 100 = 500$

89. a

90. d

91. b

92. c (Total no. of people only Fre + only Ge + Ge & Fre)

93. d (Only Fre + only Spa + Fre & Spa)

94. a

95. c People knowing 2 or more lang = 550 People know all 3 = 100
People know Ge & Spa = 200 People know Fre + Ge 100
Probability of person know in german = $400/550 = 8/11$.

96. d

97. Lines 6 and 7 deal with ways in which the children can be taught to regulate their ways of thinking . One of the ways is by learning the conventions for 'good' scientific or literary writing. Hence, [3].

98. Lines 10,11 show that as learners develop their power of reasoning, they join groups of people with similar ideas and cultivate thinking as a social and individual activity. Hence, [4].

99. The last two lines of the passage show that young people make their apprenticeships with those whom they think are masters in their chosen fields and benefit from the words and thoughts of like minded mentors. Hence, [4].

100. Reading a story is asking the question 'what if...' "constantly. It not only leads to various possibilities, but trains the child into thinking in the abstract. Hence, [2].

101. The mental space for thinking is first developed in a child when he is at play. It is then shaped, cultivated and honed by reading and writing. Hence, [2].

102. All the reasons mentioned in the item are elaborated in the passage in sentence 3, 4, and 5.

Hence, [4].

103. The chicks of the bald eagle bred in bondage are fed with a glove puppet resembling an eagle head at the Animal Planet Research Centre. Hence, [1].

104. After their release in the wild a strict monitoring programme is maintained which includes the use of radio collars. Hence, [4].

105. Sharpening of reflexes and natural instincts through the Pavlovian approach is not mentioned at all in the passage, whereas the other items are mentioned clearly at various points. Hence, [3].

106. The list of animals successfully bred in bondage is provided in sentence 2 of the passage. It does not include the cottontail rabbit. Hence, [3].

107. The passage relates to the study of environment. It talks about training animals bred in bondage to learn to fend for themselves when they are released in the wild. Hence, [3].

108. The passage argues the exact opposite of what is said in the statement. In fact it is Galileo's achievements which have been foreshadowed by later scientists, not vice versa. Hence, [1].

109. Galileo had 2 major problems with his hypothesis. One, he did not have data to support his theories and two, most of the experiments were performed in his mind not in actuality to prove his theories. Hence, [4].

110. The last sentence of passage proves the truth of statements [2], Hence, [2].

111. The passage states that the modern tools of analytical geometry and calculus were not available to Galileo in his time. Hence, [4].

112. Newton had distinct advantages over Galileo in that he was of an age which was more scientifically and technologically advanced, so with the help of modern gadgets he could experiment and use the pioneering work of Galileo to form his own theories. Hence, his achievements look bigger than those of Galileo. Hence, [3].

113. In the given space, the author critically analyses Galileo's achievements in a succinct, exhaustive, and unbiased manner. There are no tall claims regarding Galileo's achievements and yet all the relevant facts are put forth exhaustively. Hence, [4].

114. No. of bricks required = Volume of wall in cm^3 / Volume of 1 brick in cm^3
 $= 1600 \times 2400 \times 45 / 50 \times 20 \times 12 = 14400$
 Hence [1]

115. Volume of rectangular tin = (l x b x h)
 $= 16 \times 16 \times 28 = 7168 \text{ cm}^3$
 Volume of cylindrical tin = $\pi r^2 h$
 $= \frac{22}{7} \times 8 \times 8 \times 28 = 5632 \text{ cm}^3$
 \ Diff in capacities = 1536 cm^3
 Hence [1]

116. No. of bullets = Vol. of cylinder in cm^3 / Vol of 1 bullet in cm^3
 $= \frac{\pi \times 12 \times 12 \times 28}{\frac{4}{3} \times \pi \times 3 \times 3}$
 $= \frac{4032}{36}$
 $= 112$
 Hence [1]

117. Vol. of earth dug out = $\frac{22}{7} \times 14 \times 14 \times 16 = 9856 \text{ m}^3$

Area of embankment = $22/7 (56^2 - 14^2)$
 $= 22/7 \times (2940) = 9240 \text{ m}^2$
 \ Ht. Of embankment = $9856/924 \times 100$
 $= 98560 / 924 = 16.6 \text{ cm}$
 Hence [1].

118.If x = total items
 No. of items purchased = 0.50
 \ Defective items = $10\% \times 50 = 5$
 \ % = 5 %
 Hence [1].

119. $10/100 x = 30/100 y$ & $20 /100 y = 40/100$
 $x = (30/100 \times 100/ 10) y = 3y$
 $y = (40/100 \times 100/20) z = 2z$
 If $z = 4000$, then $y = 8000$ & $x = 24000$
 Total income = Rs.36000
 Hence [1]

120. Total wt of 48 students = $48 \times 70 = 3360 \text{ kg}$.
 Total wt of 48 student & teacher
 $= (49 \times 70.8) \text{ kg}$
 $= 3469.2$
 \ Wt. Of teacher = $3469.2 - 3360.0$
 $= 109.20 \text{ kg}$.
 Hence [1]

121. Average speed = $2 uv/ u+v \text{ km/hr}$.
 $= 2 \times 60 \times 40 / 60 +40 = 4800 / 100 = 48 \text{ km/hr}$.
 = Hence [1]

122.Volume of sphere Volume of wire
 $= 4 P / 3 \times 18 \times 18 \times 18 = P \times 0.4 \times 0.4 \times h$
 $= 7776 = 016 h$
 $= \ h = 486 \text{ m}$
 = Hence [1]

123.Volume of cone = Volume of sphere
 $1/3 \times P \times 4.2 \times 4.2 \times 10 = 4/3 \times P \times R^3$
 $176.4 = 4 R^3$
 \ $R^3 = 176.4 / 4$
 \ $R = \sqrt[3]{44.1} \text{ cm}$

124.No. of rods = $0.88 / P r^2 h = 0.88 / 22/7 \times 1/100 \times 1/100 \times 7$
 $= 400$
 Hence [1].

125. Let cost of each fan = RS.100
 Sale = 100 fans
 Money receipt = $100 \times 100 = \text{Rs. } 10000$
 New cost per fan = RS.85 &
 New sale = 110 fans
 New money receipt = $110 \times 85 = 9350 \text{ Rs}$.
 \ Decrease in money receipt = $650/1000 \times 100 = 6.5\%$
 Hence [1].

126. Let the no. of boys & girls be x & y rly.

The, $(x - Y) = 24\%$ of $(x + y)$

$$x - y = 24 / 100 (x + y)$$

$$25x - 25y = 6x + 6y$$

$$19x = 31 y$$

$$\backslash x/y = 31/19$$

127. New mean = $39 \times 8 + 48 / 40$

$$= 312 + 48 / 40 = 360 / 40 = 9$$

Hence [1].

128. Let the nos be $4x$, $6x$ & $10x$.

$$\backslash 16x^2 + 36x^2 + 100x^2 = 608$$

$$152x^2 = 608$$

$$x^2 = 608 / 152 = 4$$

$$\backslash x = 2$$

The nos & are 8, 12 & 20

Hence [1].

129. Ration of shares = 5 : 4

$$B's \text{ share} = 4/9 \times 9000 = 4000$$

Hence [1]

130. Ration of consumption made by x, y, z

$$= 40 \times 16 : 50 \times 16 : 32 \times 18$$

$$= 640 : 800 : 576$$

$$= 40 : 50 : 36$$

$$= 20 : 25 : 18$$

$$\backslash Y's \text{ shares} = 5040 \times 25 / 63 = 2000 \text{ RS.}$$

Hence [1].

131. Let C.P of each pen be 1.

$$\text{C.P of 10 pens} = \text{Rs.}10$$

$$\text{S.P of 10 pens} = \text{Rs.}15$$

$$\backslash \text{Gain} = 5/10 \times 100 = 50\%$$

Hence [1].

132. all the three statements are equal to $3x$

$$3x \text{ odd integer} = \text{odd}$$

Hence [4]

133. strength of the class = 36

$$\text{Total no. of graduates} = 12$$

$$\text{No. of female graduates} = 30\% \text{ of } 10 = 3$$

$$\text{no. of male graduates} = 12 - 3 = 9$$

Hence [2]

134. Thickness = p , breadth = $4 + p$, length = $6 + p$

$$\text{Volume of the box} = p(4 + p)(6 + p)$$

$$4p + p^2(6 + p)$$

$$24p + 4p^2 + 6p^2 + p^3$$

$$= p^3 + 10p^2 + 24p$$

Hence [4]

135. p.w. = $600 - 60 = \text{Rs } 540$

$$\text{S.I. on Rs } 540 = \text{RS } 60$$

Banker's discount on Rs 600 = $(60 * 600 / 540)$
 = Rs 66.67
 Hence [1]

136. Let the amount of the bill be Rs 100
 Money deducted = Rs 2.
 Money received by the holder of the bill = Rs 100 - 2 = 98
 SI on Rs 98 for 6 months = Rs 2
 Rate = $[100 * 2 * 12 / 98 * 6]$
 = 4.08%
 Hence [1]

137. Let original radius = r , original area = πr^2
 New radius = $r/4$ m, New area = $\pi (r/4)^2$
 = $\pi r^2/16$
 Decrease in area = $\pi r^2 - \pi r^2/16$
 = $15 \pi r^2/16$
 Decrease % = $15 \pi r^2 * 1 / \pi r^2 * 100$
 = 93.75%
 Hence [1]

138. Area = $[6 * \sqrt{3/4} * 3^2]$
 = $6 * \sqrt{3} * 9/4 = 27\sqrt{3}/2$
 Hence [2]

139. Length of wire = circumference = $[2 * 22 * 35 / 7]$ cm = 220 cm
 $2(2x + 3x) = 220$
 $2x + 3x = 110$
 $x = 22$
 Smaller side = $2x = 2 * 22 = 44$
 Hence [3]

140. $p(A) = 1/2$, $P(A1) = 1/2$, $P(B) = 3/4$, $P(B1) = 1/4$
 = $p(A) * p(B1) + P(B) * P(A1) + P(B1) * P(A1)$
 = $1/2 * 1/4 + 3/4 * 1/2 + 1/4 * 1/2$
 = $1/8 + 3/8 + 1/8 = 4/8 = 50\%$
 Hence [4]

141. $47c_4 + 47c_3 + 48c_3 + 49c_3 + 50c_3 + 51c_3$
 $47c_4 + 47c_3 = 48c_4$
 $48c_4 + 48c_3 = 49c_4$
 $49c_4 + 49c_3 = 50c_4$
 $50c_4 + 50c_3 = 51c_4$
 $51c_4 + 51c_3 = 52c_4$
 Hence [2]

142. co-Ordinates are $(6 + 6/2, -2 + 3/2)$
 i.e. $(6, 1)$
 $XA = \sqrt{(-8 - 6)^2 + (-5 - 1)^2}$
 = $\sqrt{(-14)^2 + (-6)^2}$
 = $\sqrt{196 + 36} = \sqrt{232}$
 Hence [1]

143. Total distance = 8400 km
 Total time = $5000 / 1000 + 2400/800 + 1000/500$

= 10 hrs
 AV. Speed = 840 km/hr
 Hence [1]

144. Let the total distance be x km
 $X/2 * 120 + x/2 * 96 = 12$
 $X/240 + x/192 = 12$
 $432x / 46080 = 12$
 $x = 46080 * 12 / 432 = 1280$ km
 Hence [1]

145. Speed of train = $(108 * 5 / 18)$ m./ sec
 = 30 m/sec
 In passing the tunnel it will have to cover $(360 + 1080)$ m
 Required time = $1440 / 30 = 48$ Sec
 Hence [1]

146. If the length of train = x meters
 The train covers x meters in 2 seconds & $(x + 50)$ m in $9/2$ seconds
 Speed = $40/2$ m/sec = $20 * 18/5$
 = 72 Km/hr. Hence [1]

147. Relative speed of = $64 + 80 = 144$ kmph
 The trains = $144 * 5 / 18 = 40$ m/sec
 Time taken in passing each other = sum of lengths / relative speed = $480 / 40 = 12$ sec
 Hence [1]

148. Rate of current = $1/2 (21.2 - 16) = 2.6$ km/hr
 Hence [1]

149. Let speed be x
 $10 / x - 2 + 10 / x + 2 = 55 / 60$
 $11x^2 - 240x - 44 = 0$
 $(x - 22) = 0 \setminus x = 22$ Hence [1]

150. Let their ages be 3x & 5x yrs.
 $3x + 5x = 80$
 $x = 10$
 Present ages are 30 & 50 yrs.
 Ratio of their ages after 10 yrs. $40 : 60 = 2 : 3$
 Hence [1]

151. $5x + 5 / x + 5 = 5 / 2$
 $10x + 10 = 5x + 35$
 $5x = 25 \ x = 5$
 Hence [1]

152. Let DE be the road & AB ladder
 $AC = AB = 20$
 $DA^2 = 400 - 256 = 144$
 $DA = 12$
 $AE^2 = 400 - 144 = 256$
 $AE = 16$
 $DE = 12 + 16 = 28$ m
 Hence [1]

153. Amt of Alcohol in 10 litres of solution = $40 * 10 / 100 = 4$ litres

One litre of water is added.

The amount of alcohol in 11 litres = 4 litres

Strength of the solution = $4 / 11 * 100 = 400 / 11 = 36.36\%$

Hence [1]

154. C.P. Rs. 240 \ S.P. = $150 * 240 / 100 = \text{Rs } 360.$

Hence [1]

155. The altitude will be $\sqrt{10^2 - 6^2} = 8$ (we get $6 \sqrt{21 - 9} = 12 \sqrt{12} / 2 = 6$)

Area = $1 / 2 * 8 (21 + 9) = 120 \text{ cm}^2$

Hence [1]

156. $\sin^4 Q + \cos^4 Q$

$(\sin^2 Q + \cos^2 Q)^2 - 2 \sin^2 Q \cdot \cos^2 Q = 1$

$2 \sin^2 Q \cdot \cos^2 Q$

$\sin^2 Q \cdot \cos^2 Q = 0$

$\sin Q = 0$ or $\cos Q = 0 \setminus Q = 0^\circ$ or 90°

Hence [1]

157. Income Savings Expenditure

Original 100 20 80

Now 150 20 130

I can spend Rs 130 out of Rs 150

I can afford to spend $130/150 * 100 = 86.67\%$

Hence [1]

158. $p + q + r = 0$

$p^3 + q^3 + r^3 = 3 pqr$

$p^3 / pqr + q^3 / pqr + r^3 / pqr = 3$

$p^2 / qr + q^2 / pr + r^2 / pq = 3$

Hence [4]

159. $3x + 4 = 0$

$x = - 4 / 3$

so, remainder is $f(- 3/4)$

Hence [3]

160. Let there be x hens and y buffaloes.

Then, $x + y = 24$

$X + 2y = 38$

$+ y = + 14$

number of buffaloes = 14

number of hens = $24 - 14 = 10$

Hence [1]

161. The difference is (54 3210 - 102345)

= 440865

Hence [2]

162. Let the denominator = $x + 4$, numerator = x

$x + 6 / x + 4 - 4 = 3$

$x + 6 = 3x$

$6 = 2x$

$x = 3$
numerator = 3
denominator = 7
the number = $3 / 7$
Hence [4]

163. Let the third number be 100, Then
First number = 75 and second number = 70
second is less than first by $5/75 * 100$
= 6.67%
Hence [2]

164.[a] 165.[c] 166.[a] 167.[c] 168.[b]

169.[a] 170.[a] 171.[a] 172.[c] 173.[c]

174.[b] 175.[a] 176.[a] 177.[d] 178.[a]

179.[b] 180.[c] 181.[c] 182.[d] 183.[a]

184.[c] 185.[a]