Class – VIII

School Integrated Program

ENTRANCE TEST CUM SCHOLARSHIP TEST

[Time: 2 Hours] **[Max Marks: 400]**

A. General:

1. *This booklet is a Question Paper containing 100 questions.*
2. *Blank Papers, Clipboards, Log Tables, slide rules, calculators, cellular phones, pagers and electronicgadgets in any form are not allowed to be carried inside the examination hall.*
3. *The answer sheet, a machine-readable optical mark recognition sheet (OMR Sheet), is providedseparately.*
4. *DO NOT TAMPER WITH THE OMR OR THE BOOKLET.*
5. *Please fill your roll number correctly in the OMR sheet (answer sheet).*
6. *Both Question Paper and OMR Answer Sheet will be submitted after completion of this examination.*

B. Question Paper Format and marking scheme:

1. *The Question Paper consists of five parts (Part I: MAT, Part II: Physics, Part III: Chemistry, Part IV: Biology, Part V: Mathematics).*
2. *Each Question carries +4 marks for correct answer and -1 mark for incorrect answer.*

MAT

1. In the series given below, how many 8s are there each of which is exactly divisible by its immediate preceding as well as succeeding numbers?

2 8 3 8 2 4 8 2 4 8 6 8 2 8 2 4 8 3 8 2 8 6

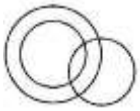
(a) One (b) Two (c) Three (d) Four

2. How many 7s are there in the following number series which are preceded by 9 and also followed by 6?

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

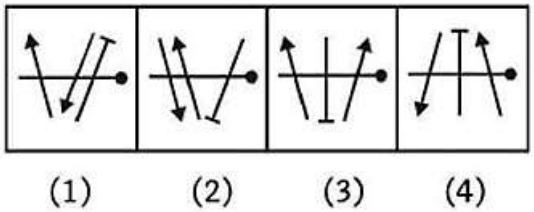
(a) Two (b) Three (c) Four (d) Five

3. Which of the following diagrams correctly represents the relationship among readers, writers and poets?

(a)  (b) 

(c)  (d) 

4. Choose the figure which is different from the others.



(a) (1) (b) (2) (c) (3) (d) (4)

Direction (Q. 5-6): In each of the questions given below, find the next term to fill the blank space.

5. 3,5,10,12,24,26,__.

(a) 52 (b) 30 (c) 28 (d) 48

6. 3,6,5,20,7,42,9,__.

(a) 60 (b) 54 (c) 72 (d) 66

7. Lalit walks 8 km east, turns south-west and walks another 8 km . He again takes a turn towards north-west and walks another 8 km. In which direction from his starting point is he standing now?

(a) North-East (b) South-East

(c) West (d) East

8. Which of the following number does not fit in the sequence?

3,7,9,11,13,17,19

(a) 3 (b) 7 (c) 17 (d) 9

9. L, M, N and O are brothers. L is darker than O, N is the fairest of all. M is fairer than O. Who is the darkest of all ?

(a) N (b) O (c) L (d) M

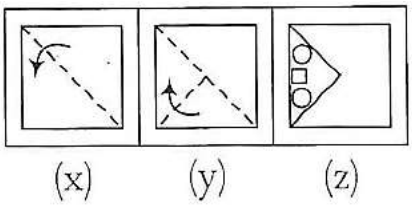
10. Anjali says, "He is the only son of the father of my sister's brother." How is that person related to Anjali?

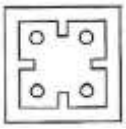
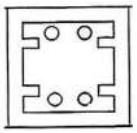
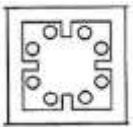
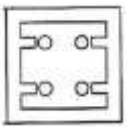
(a) Uncle (b) Cousin

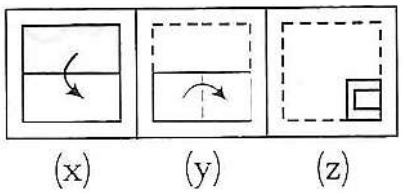
(c) Brother (d) Father

Direction (Q. 11-12): In the following questions, select the answer figure from the given alternatives which is closest to the unfolded paper.

11. Problem Figures



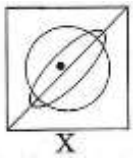
(a)  (b)  (c)  (d) 

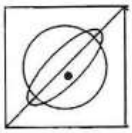
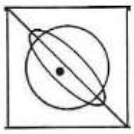
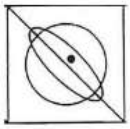
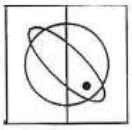
12. 

(a)  (b)  (c)  (d) 

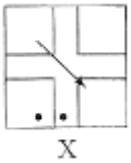
Direction (Q. 13-14): In the following questions, choose the correct water image from amongst the four alternatives a, b, c and d given along with it.

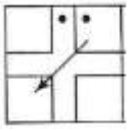
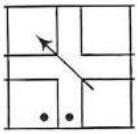
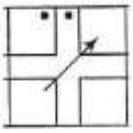
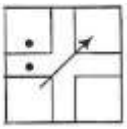
13. Problem Figure



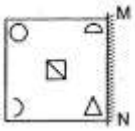
(a)  (b)  (c)  (d) 

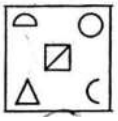
14. Problem Figure

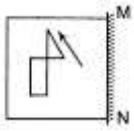


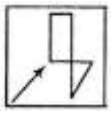
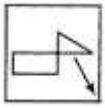
(a)  (b)  (c)  (d) 

Direction (Q. 15-16): In the following questions, choose the correct mirror image from amongst the four alternatives a, b, c and d given along with it.

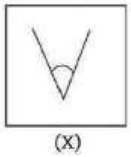
15. 

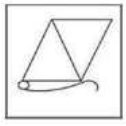
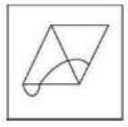
(a)  (b)  (c)  (d) 

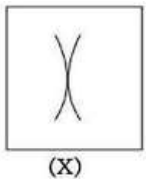
16. 

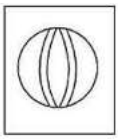
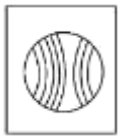
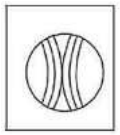
(a)  (b)  (c)  (d) 

Direction (Q. 17-18): In each of the following questions, you are given a figure (X) followed by four alternative figures (a), (b), (c) and (d) such that fig. (X) is embedded in one of them. Trace out the alternative figure which contains fig. (X) as its part.

17. 

(a)  (b)  (c)  (d) 

18. 

(a)  (b)  (c)  (d) 

19. Find the odd word/ letters out from the given alternatives.

(a) VWY (b) QRT (c) LMO (d) JKL

Direction (Q. 20): Read the information given below carefully and answer the question.

x + y means x is the sister of y .

$x - y$ means x is the son of y.

$x \times y$ means x is the mother of y

$x \neq y$ means x is the father of y

20. Which of the following alternative means 'F is father of J ?

(a) $F + G \neq H \times I - J$ (b) $J \neq I + H \neq G + F$

(c) $F + G - H \times I - J$ (d) $J + I - H \times G - F$

21. If in a code language PARENT is written as BDFGJK and CHILDREN is written as MOXQUFGJ, how is REPRINT written in that code?

(a) FGBFXGD (b) BGBFXJK (c) FGBUXJK (d) FGBFXJK

22. If the letters in PRABA are coded as 27595 and THILAK are coded as 368451 , how can BHARATI be coded?

(a) 9657538 (b) 9567538 (c) 9675538 (d) 9567568

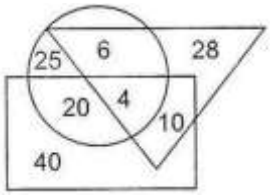
23. Jaya's position from the left in a row of students is 12th and Rekha's position from the right is 20th. After interchanging their positions Jaya becomes 22nd from the left. How many students are there in the row?

(a) 30 (b) 31 (c) 41 (d) 34

24. Manish ranked sixteenth from the top and twenty-ninth from the bottom among those who has passed an examination. Six boys did not participate in the examination and five failed in it. How many boys were there in the class?

(a) 40 (b) 44 (c) 50 (d) 55

Direction (Q. 25-26): On the basis of the following Venn-diagram, answer the questions given below. The rectangle represents artists, the circle represents player and the triangle represents doctors



25. How many artists are players but not doctors?

(a) 25 (b) 20 (c) 10 (d) 30

26. How many artists are neither player nor doctor?

(a) 40 (b) 10 (c) 30 (d) 25

27. In the following question, three statements are given followed by four conclusions numbered I, II, III & IV. You have to take the given statements to be true even if they seem to be at variance from the commonly known facts & then decide which of the following conclusions logically follows from the given statements disregarding commonly known facts.

Statements:

Some Cats are Rats.

All bats are tables.

All Rats are Bats.

Conclusion:

I. Some Cats are bats

II. All bats are rats

III. All tables are cats

IV. All bats are cats

(a) Only I & II follow

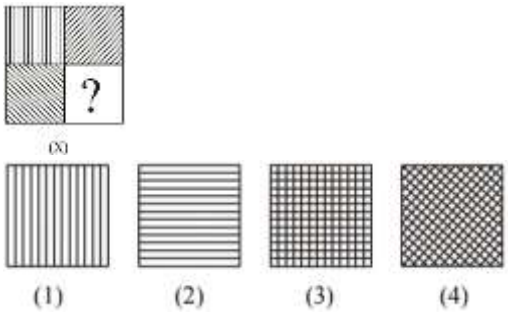
(b) Only II follows

(c) Only I & IV follow

(d) None of these

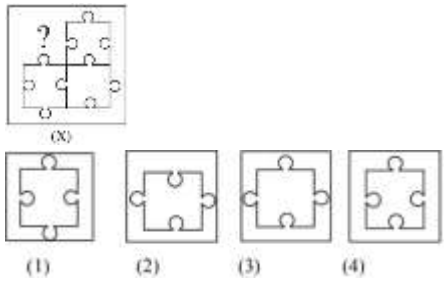
Direction (Q. 28-29): In each of the following questions, select a figure from the four alternatives, which when placed in the space where the question mark is shown in figure (*X*) would complete the figure.

28.



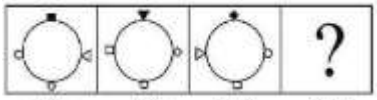
(a) 1 (b) 2 (c) 3 (d) 4

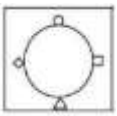
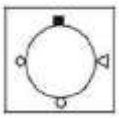
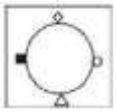
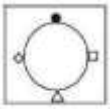
29.



(a) 1 (b) 2 (c) 3 (d) 4

30. In the following question, a figure series is given out of which the last figure is missing, Find which one would complete the series.



(a) 
(b) 
(c) 
(d) 

PHYSICS

31. A marble tile would feel cold as compared to a wooden tile on a winter morning because the marble tile

(a) Is a better conductor of heat than the wooden tile.
(b) Is polished, while the wooden tile is not polished.
(c) Reflects more heat than the wooden tile.
(d) Is a poor conductor of heat than the wooden tile.

32. A beggar wrapped himself with a few layers of newspaper on a cold winter night. This helped him to keep himself warm because

(a) Friction between the layers of newspaper produces heat.
(b) Air trapped between the layers of newspaper is a bad conductor of heat.
(c) Newspaper is a conductor of heat.
(d) Newspaper is at a higher temperature than the temperature of the surrounding.

33. Anaya and Ridhaan measured their body temperature. Anaya found her's to be 98.6° F, and Ridhaan recorded 37° C. Which of the following statement is true?

(a) Anaya has a higher body temperature than Ridhaan.
(b) Anaya has a lower body temperature than Ridhaan.
(c) Both have a normal body temperature.
(d) Both are suffering from fever.

34. Which of the following best explains the scenario below?

On a summer morning, Ahaan walks barefoot across his paved driveway with no problem. However, later that afternoon he steps barefoot onto the same driveway and must quickly run off because the bottoms of his feet feel like they are burning.

(a) As the temperature increased during the day, the particles in the pavement moved slower and the thermal energy increased.
(b) As the temperature increased during the day, the particles in the pavement moved slower and the thermal energy decreased.
(c) As the temperature increased during the day, the particles in the pavement moved faster and the thermal energy increased.
(d) As the temperature increased during the day, the particles in the pavement moved faster and the thermal energy decreased.

35. Convert 273.15 Kelvin into degree Celsius.

(a) Zero degree Celsius
(b) Two degree Celsius
(c) Seven degree Celsius
(d) Eight degree Celsius

36. The process by which heat is transferred from hotter end to the colder of an object is known as _____.

(a) Conduction (b) Convection

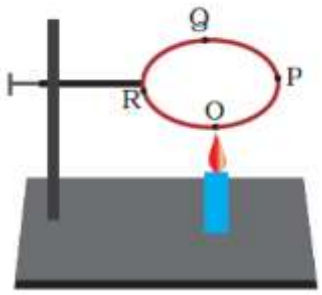
(c) Radiation (d) None of these

37. Which of the following quantities will increase when a liquid at room temperature becomes a gas at its boiling point?

(a) The average kinetic energy of molecules (b) The molecular size

(c) The total number of molecules (d) All of these

38. A circular metal loop is heated at point O as shown in Figure.



In which direction would heat flow in the loop?

(a) O to P and O to R (b) O to P only

(c) O to R only (d) None of the above

39. One litre of water at 30 degrees Celsius is mixed with one litre of water at 50 degrees Celsius. The temperature of the mixture will be_____.

(a) 80 degrees Celsius

(b) More than 50 degrees Celsius but less than 80 degrees Celsius

(c) 20 degrees Celsius

(d) Between 30 and 50 degrees Celsius

40. The SI unit of heat energy is: -

(a) Calorie (b) Joule (c) Metre (d) None of these

41. SI unit of temperature is: -

(a) Kelvin (b) Celsius (c) Fahrenheit (d) None of these

42. A material through which thermal energy flows easily is-

(a) Thermal Contraction (b) Temperature

(c) Thermal Conductor (d) Convection Current

43. Specific heat capacity is _____ for conductors of heat and _____ for insulators of heat.

(a) low, low (b) low, high (c) high, high (d) high, low

44. An iron ball at 40°C is dropped in a mug containing water at 40°C. The heat will

(a) Flow from iron ball to water.

(b) Not flow from iron ball to water or from water to iron ball.

(c) Flow from water to iron ball.

(d) Increase the temperature of both.

45. A wooden spoon is dipped in a cup of ice cream. Its other end

(a) Becomes cold by the process of conduction. (b) Becomes cold by the process of convection.

(c) Becomes cold by the process of radiation. (d) Does not become cold.

CHEMISTRY

46. Which of the following statements about bases is incorrect?

(a) Bases react with acids to form salts and water.

(b) Bases have a slippery feel.

(c) Bases turn red litmus paper blue.

(d) Bases react with all metals to produce hydrogen gas.

47. What is the main component of baking soda?

(a) Sodium carbonate (b) Sodium bicarbonate

(c) Calcium carbonate (d) Potassium bicarbonate

48. Why does an acidic solution conduct electricity?

(a) Due to the presence of water molecules (b) Due to the presence of ions

(c) Due to the presence of acids (d) Due to the presence of electrons

49. Which of the following methods can be used to test whether a given solution is acidic or basic if litmus paper is unavailable?

(a) Smelling the solution (b) Tasting the solution

(c) Using turmeric as an indicator (d) Using salt solution

50. Which of the following base is used in making antacids?

(a) Sodium hydroxide (b) Magnesium hydroxide

(c) Aluminium hydroxide (d) Calcium hydroxide

51. Which of these substances is basic in nature?

(a) Baking soda (b) Vinegar (c) Lemon juice (d) Curd

52. Which of the following is a weak acid?

(a) Hydrochloric acid (b) Acetic acid

(c) Sulphuric acid (d) Nitric acid

53. Which gas is released when a metal carbonate reacts with an acid?

(a) Hydrogen (b) Oxygen

(c) Nitrogen (d) Carbon dioxide

54. Why do bee stings cause pain and irritation?

(a) Due to the basic nature of the venom (b) Due to the acidic nature of the venom

(c) Due to the neutral pH of the venom (d) Due to the presence of salt in the venom

55. What is the purpose of using calcium oxide (lime) in agriculture?

(a) To make the soil more acidic (b) To neutralize acidic soil

(c) To make the soil basic (d) To increase soil salinity

56. Which of the following salts, when dissolved in water, will result in an acidic solution?

(a) Sodium chloride (b) Ammonium chloride

(c) Potassium sulphate (d) Magnesium sulphate

57. What is the effect of dilution on the strength of an acid or base?

(a) Increases the strength (b) Decreases the strength

(c) No change in strength (d) Depends on the amount of water added

58. Which acid is found in vinegar?

(a) Citric acid (b) Acetic acid

(c) Tartaric acid (d) Hydrochloric acid

59. What will happen if we put China rose indicator into lemon juice?

(a) It will turn red (b) It will turn green

(c) It will remain blue (d) It will become colourless

60. Sodium hydroxide is found in

(a) Lemon (b) Soap (c) Oil of Vitriol (d) Table Salt

BIOLOGY

61. Most fungi and some bacteria obtain their nutrients from dead and decaying matter. This mode of nutrition is called:

(a) Parasitic nutrition (b) Autotrophic nutrition

(c) Saprotrophic nutrition (d) Symbiotic nutrition

62. The tiny pores present on the surface of leaves for gas exchange are called:

(a) Vessels (b) Stomata

(c) Chlorophyll (d) Lamina

63. Green plants are called autotrophs because they:

(a) Depend on other organisms for food (b) Prepare their own food

(c) Do not require any food (d) Eat small insects

64. Which pigment gives leaves their green color and traps sunlight?

(a) Hemoglobin (b) Melanin

(c) Chlorophyll (d) Xanthophyll

65. Which tissue acts as the pipeline to transport water and dissolved minerals from the roots upwards to the leaves?

(a) Phloem (b) Xylem

(c) Stomata (d) Epidermis

66. Amoeba traps its food with the help of temporary finger-like projections called:

(a) Tentacles (b) Cilia

(c) Pseudopodia (d) Flagella

67. Finger-like outgrowths called villi are present on the inner walls of which organ to increase surface area for food absorption?

(a) Stomach (b) Large intestine

(c) Small intestine (d) Oesophagus

68. Bile juice, which helps in the digestion of fats, is stored in the:

(a) Stomach (b) Gallbladder

(c) Small intestine (d) Liver

69. The process of breaking down complex food components into simpler substances is called:

(a) Ingestion (b) Assimilation

(c) Egestion (d) Digestion

70. During heavy exercise, we sometimes get muscle cramps due to the partial breakdown of glucose. This accumulation causes pain and is called:

(a) Lactic acid (b) Citric acid

(c) Alcohol (d) Carbon dioxide

71. Which blood cells help in clotting blood when you get a cut?

(a) Red Blood Cells (RBCs) (b) White Blood Cells (WBCs)

(c) Platelets (d) Plasma

72. The muscular tube that connects the mouth to the stomach is called the:

(a) Trachea (b) Oesophagus (Food pipe)

(c) Small Intestine (d) Arteries

73. The period of life when the body undergoes changes leading to reproductive maturity is called:

(a) Childhood (b) Infancy

(c) Adolescence (d) Senescence

74. Which endocrine gland is often called the "Master Gland" because its hormones control the activity of other glands?

(a) Thyroid gland (b) Pituitary gland

(c) Adrenal gland (d) Pancreas

75. The protrusion of the larynx (voice box) seen in boys during puberty is commonly known as:

(a) Wisdom tooth (b) Adam's apple

(c) Thyroid box (d) Vocal cord

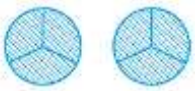
MATHEMATICS

76. On the number line, the value of $(-3) \times 3$ lies on right hand side of

(a) -10 (b) - 4 (c) 0 (d) 9

77. Pictorial representation of $3 \times \frac{2}{3}$ is:

(a)  (b) 

(c)  (d) 

78. In a class of 60 students, the number of girls is one third the number of boys. Find the number of girls and boys in the class.

(a) 10, 30 (b) 8, 24 (c) 17, 55 (d) 15, 45

79. Write the value of $3 \times 0.3 \times 0.03 \times 0.003 \times 3000$

(a) 0.00243 (b) 0.000243 (c) 243 (d) 0.243

80. Find the value of

$$\frac{3.4 \times 3.4 \times 3.4 - 5.6 \times 5.6 \times 5.6}{3.4 - 5.6}$$

(a) -36.46 (b) 61.96 (c) -61.96 (d) None of these

81. Simplify : $222 - \left[\frac{1}{3}\{42 + (56 - \overline{8+9})\} + 108\right]$.

(a) 87 (b) 88 (c) 89 (d) 90

82. Solve $\frac{1}{1+\frac{1}{2+\frac{1}{3}}} =$

(a) $\frac{1}{6}$ (b) $\frac{3}{10}$ (c) $\frac{7}{10}$ (d) $\frac{5}{6}$

83. If $\frac{2}{5}(5x + 1) + \frac{3}{5} = 1$, then what is the value of x?

(a) $\frac{-1}{5}$ (b) 1 (c) 0 (d) $\frac{1}{5}$

84. 1litre of water weighs 1 kg . How many cubic millimetres of water will weigh 0.1 g ?

(a) 1 (b) 0.1 (c) 10 (d) 100

85. Which statement is always true for all integers?

(a) $a - b = b - a$ (b) $a - (-b) = a + b$

(c) $a - b$ is always positive (d) $a - b$ is always negative

86 Which of the following is not the additive inverse of ?

(a) $-(-a)$ (b) $a \times (-1)$ (c) $-a$ (d) $a \div (-1)$

87. One packet of biscuits requires $2\frac{1}{2}$ cups of flour and $1\frac{2}{3}$ cups of sugar. Estimated total quantity of both ingredients used in 10 such packets of biscuits will be

(a) Less than 30 cups
(b) Between 30 cups and 40 cups
(c) Between 40 cups and 50 cups
(d) Above 50 cups

88. Anamika thought of a number. She multiplied it by 2, added 5 to the product and obtained 17 as the result. What is the number she had thought of?

(a) 5 (b) 6 (c) 7 (d) 8

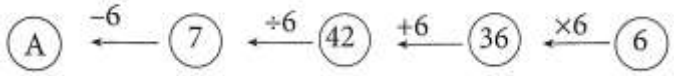
89. Which of the following statements is CORRECT?

Statement-1: When a positive integer and a negative integer are added, we always get a negative integer.

Statement-2: When two negative integers are added, we get a positive integer.

(a) Only Statement-1
(b) Only Statement-2
(c) Both Statement-1 and Statement-2
(d) Neither Statement-1 nor Statement-2

90. Find the value of A by working backwards.



(a) 24 (b) 42 (c) 6 (d) 1

91. Which of the following options hold?

(1) Every integer is a rational number and every fraction is a rational number.
(2) A rational number $\frac{p}{q}$ is positive if p and q are either both positive or both negative.
(3) A rational number $\frac{p}{q}$ is negative if one of p and q is positive and other is negative.
(4) If there are two rational numbers with common denominator then the one with the larger numerator is larger than the other.

(a) 1 and 4 are incorrect
(b) 2 and 3 are incorrect
(c) 1 is incorrect
(d) All are correct

92. The value of $\left[\left(-2\frac{3}{4}\right)-\left(-1\frac{3}{4}\right)\right]+\left[\left(-2\frac{3}{4}\right)-\left(-1\frac{3}{4}\right)\right]+\cdots\ldots\ldots$ upto 30 times is .

(a) -1 (b) 1 (c) 30 (d) -30

93. If $\frac{2x}{1+\frac{1}{1+\frac{x}{1-x}}}=1$, then find the value of x.

(a) 1 (b) 4/3 (c) 1/3 (d) 2/3

94. Which of the following statements is INCORRECT?

(a) The sum of any two sides of a triangle is greater than the third side.
(b) In a right angled triangle, hypotenuse is the longest side.
(c) A, B, C are collinear if $AB + BC = AC$.
(d) The sum of any two sides of a triangle is smaller than the third side.

95. If $2z+\frac{8}{3}=\frac{1}{4}z+5$, then find the value of z.

(a) $\frac{3}{4}$ (b) 4 (c) 3 (d) $\frac{4}{3}$

96. The present ages of A and B are in the ratio 5 : 3. After 6 years, their ages will be in the ratio 7 : 5. Find the sum of their present ages.

(a) 15 years (b) 12 years (c) 10 years (d) 24 years

97. How many numbers between 11 and 111 are multiples of both 2 and 5?

(a) 10 (b) 12 (c) 11 (d) 70

98. At present, the ratio of the ages of Arun and Deepak is 4: 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present?

(a) 12 years (b) 15 years (c) $19\frac{1}{2}$ years (d) 21 years

99. 4 is added to a number and the sum is multiplied by 5. If 20 is subtracted from the product and the difference is divided by 8 , the result is equal to 10 . Then find the number.

(a) 16 (b) 8 (c) 20 (d) 12

100. Write $1+\frac{1}{1+\frac{1}{3}}$ as a decimal.

(a) 2.25 (b) 1.75 (c) 3.90 (d) None of these