STUDY VAULT
committed to excellence

Class – VII

ENTRANCE TEST CUM SCHOLARSHIP (SAMPLE PAPER-2)

[Time: 3 Hours] [Max Marks: 450]

A. General:

1. *This booklet is a Question Paper containing 150 questions.*
2. *Blank Papers, Clipboards, Log Tables, slide rules, calculators, cellular phones and electronic gadgets 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 provided separately.*
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 +3 marks for correct answer and -1 mark for incorrect answer.*

MAT

Directions (Qs. 1 to 4) : The first two words have a definite relationship with each other. A third word followed by a set of alternatives is given on the right side of the sign. Choose the alternative which expresses the same relationship with the third word.

1. Conscience : Wrong : : Police : ?

(a) Discipline (b) Enemy (c) Hardship (d) Crime

2. Vendor : Buyer : : Advocate : ?

(a) Client (b) Case (c) Court (d) Victim

3. Height : Climber : : Space : ?

(a) Courage (b) Astronauts (c) Orbit (d) Flyer

4. Birds : Nests : : People : ?

(a) Homes (b) Houses (c) Sky (d) Land

Directions (Qs. 5 to 9) : Choose the correct alternative that will continue the same pattern and fill the blank space.

5. 2, 6, 12, 20, 30, 42, _____.

(a) 54 (b) 55 (c) 56 (d) 58

6. 1, 4, 2, 8, 6, 24, 22, 88, ____.

(a) 86 (b) 90 (c) 154 (d) 188

7. 6, 13, 28, 59, ____.

(a) 119 (b) 120 (c) 122 (d) 125

8. 225, 336, 447, ____, 669, 7710

(a) 114 (b) 338 (c) 558 (d) 991

9. 5, 17, 37, 65, ____, 145.

(a) 95 (b) 97 (c) 99 (d) 101

Directions (Qs. 10 to 14) : Choose the one which is different from the remaining four.

10. (a) 10 (b) 26 (c) 24 (d) 21

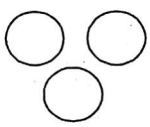
11. (a) 51 (b) 144 (c) 64 (d) 121

12. (a) NPM (b) IJL (c) QSZ (d) BHK

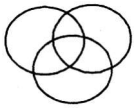
13. (a) XYZ (b) ABC (c) MNO (d) PQS

14. (a) FCGDE (b) TRQPS (c) KJHMF (d) KHGJI

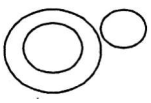
Directions (Qs. 15 to 16) : Each of the questions below contains three elements. These elements may or may not have some linkage. Each group of the elements may fit into one of the diagrams (a), (b), (c), (d). You have to indicate the group of elements in each of the questions which fits into one of the following diagrams. The option of that diagram is the answer.



(a)



(b)



(c)

(d)

15. Train, Bus, Taxi.

16. Tree, Fruit, Guava.

Directions (Questions 17 to 18) : Answer the following questions based on the alphabet given below :

17. What will come in place of the question (?) mark in the following series?

GPW, GPUW, GIPUW, GIPSUW, ?

(a) GILPSUW (b) GIPQSUW (c) GIKPSUW (d) GIJPSUW

18. If the alphabets are written in the reverse order after interchanging alphabets from 'D to L' with those from 'R to Z' respectively, which letter would be midway between W and E in the new order?

(a) M (b) N

(c) O (d) There is no such letter

19. In a certain code 'Lee ra de' means 'what was it'; 'mo nil' means 'you go' ; 'nil pam ra' means 'you like it' and 'tok lee fo' means' 'she was sick'. How will you write 'what you like' in that code?

(a) pam ra Lee (b) ni ra Lee

(c) Data inadequate (d) None of these

20. How many pairs of letters are there in the word EXCLUSIVE which have as many letters between them as in the alphabet?

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

21. If it is possible to make a meaningful word from the fifth, seventh, eighth, ninth and thirteenth letters of the word 'EXTRAORDINARY', using each letter of that word once only, write the second letter of that word as your answer. If no such word can be formed, write 'X' as your answer and if more than one such words can be formed, write 'M' as your answer.

(a) A (b) I (c) R (d) M

22. Ankit walks 10 kilometres towards North. From there he walks 6 kilometres towards South, Then, he walks 3 kilometres towards East. How far and in which direction is he with reference to his starting position?

(a) 5 km. West (b) 5 km. North-East

(c) 7 km. East (d) 7 km. West

Directions (Qs. 23 to 27) : Read the following information and answer the questions given below it:

(i) There are five friends S, K, M, A and R.

(ii) S is shorter than K but taller than R.

(iii) M is the tallest.

(iv) A is a little shorter than K and little taller than S.

23. Who is the shortest ?

(a) R (b) S (c) A (d) K

24. If they stand in order of their heights, who will be the second?

(a) A (b) S (c) R (d) K

25. If they stand in the order of increasing heights, who will be in the middle ?

(a) K (b) R (c) S (d) A

26. Who is the second tallest ?

(a) S (b) K (c) A (d) R

27. Who is taller than A but shorter than M ?

(a) K (b) R (c) S (d) Data inadequate

Directions (Qs. 28 to 30) : Find one word that cannot be made front the letters of the given word.

28. CONSTITUTIONAL

(a) LOCATION (b) TUITION (c) TALENT (d) CONSULT

29. CREDENTIALS

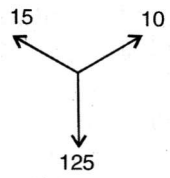
(a) DENTAL (b) CREATE (c) TRAIN (d) CREAM

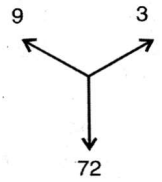
30. CARPENTER

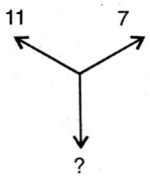
(a) NECTAR (b) CARPET (c) PAINTER (d) REPENT

Directions (Questions 31 to 35) : Find the missing character in each of the following questions :

31.

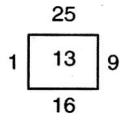


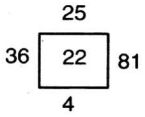


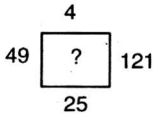


(a) 54 (b) 72 (c) 75 (d) 83

32.



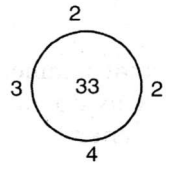


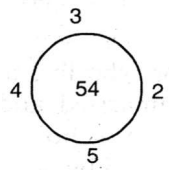


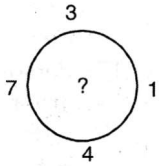
(I) (II) (III)

(a) 25 (b) 22 (c) 27 (d) 37

33.

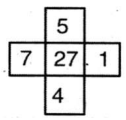


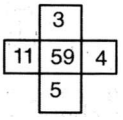


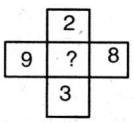


(a) 79 (b) 78 (c) 77 (d) 75

34.

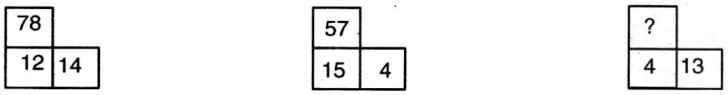






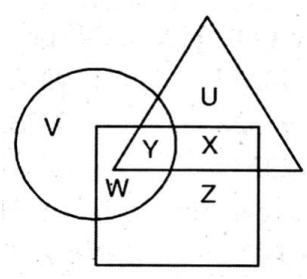
(a) 86 (b) 72 (c) 66 (d) 78

35.



(a) 54 (b) 51 (c) 49 (d) 45

Directions (Questions 36 to 40): In the following diagram, three classes of population are represented by three figures. The triangle represents the school teachers, the square represents the married person and the circle represents the person living in joint families.



36. Married persons living in joint families but not working as school teachers are represented by

(a) X (b) U (c) W (d) Z

37. Persons who live in joint families are unmarried and who do not work as school teachers are represented by

(a) X (b) Y (c) V (d) W

38. Married teachers living in joint families are represented by

(a) X (b) Y (c) W (d) U

39. School teachers who are married but do not live in joint families are represented by

(a) X (b) U (c) Z (d) W

40. School teachers who are neither married nor live in joint families are represented by

(a) U (b) X (c) Y (d) Z

41. Find the word that cannot be formed from the letters of the word **PHOTOSYNTHETIC**

(a) THOSE (b) SCENT (c) PRONE (d) COTTON

42. If RAMAN is written as 12325 and DINESH is written as 67589, then how will 'HAMAN' be written?

(a) 92233 (b) 92323 (c) 93322 (d) 92325

43. In a certain code, if HENRY is written as 'jgpta', how will COUNTRY be coded?

(a) Eqwputa (b) Eqwpvta (c) Eqwvpte (d) Eqwvpta

44. If MARS is written as ZNEF, how ARMS can be coded in that code?

(a) NEZF (b) FENZ (c) NFZE (d) MEZF

45. In a class, Suman is ranked 7th from the top. Vijay is ranked 15th from the top and 21st from the bottom in the same class. What is Suman's rank from the bottom?

(a) 27th (b) 39th (c) 38th (d) 29th

Directions (Qs 46 to 48) : Supply the right letters for question mark (?) in the following questions.

46. A D E H I L ? ?

(a) MP (b) MN (c) MO (d) MQ

47. CD HI MN ? ?

(a) QS (b) RS (c) OP (d) PQ

48. ACF acf G ? ? ? ? ?

(a) ILgil (b) JLgil (c) ILgli (d) LLgli

Directions (Qs. 49-51) : In each of the following questions, one term in the number series is wrong. Find out the wrong number.

49. 5, 5, 10, 30, 120, 480, 3600

(a) 10 (b) 120 (c) 30 (d) 480

50. 0.5, 2, 5, 11, 23, 46, 95, 191

(a) 191 (b) 95 (c) 46 (d) 23

51. 1, 2, 4, 12, 36, 72, 216, 432, 1296

(a) 4 (b) 12 (c) 36 (d) 72

52. February 3 was Friday in a particular year. The last Sunday of February in that year will fall on :

(a) Feb. 25 (b) Feb. 26 (c) Feb. 27 (d) Feb. 28

53. How many times between 4 O'clock afternoon and 10 o'clock night, the two hands of a clock are at right angles ?

(a) 8 (b) 10 (c) 12 (d) 11

54. B is A's son. B is my son's uncle. Then A is my :

(a) Uncle (b) Grandmother (c) Father (d) Brother

55. Both 'P' and 'Q' are S's children, S is father of P but Q is not son of S. Then Q is S's :

(a) Brother (b) Sister (c) Daughter (d) Son

56. Shitin starts from Bus stop and goes 4 km. towards east. Then he turns left and goes 3 km. He further turns to right and goes 1 km. He, then turns to left and goes 2 km and again turns to left and goes 5 km. In which direction is he now from the bus stop?

(a) East (b) North-West (c) North (d) South

Directions (Qs 57 to 59) : Find the odd one out :

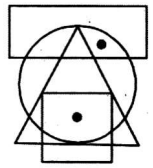
57. (a) Area (b) Region (c) District (d) Land

58. (a) Few (b) Some (c) Most (d) All

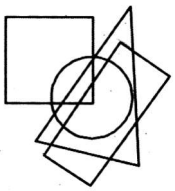
59. (a) 25 (b) 36 (c) 49 (d) 63

Directions (Questions 60) : There is a diagram marked (X) with one or more dots placed in it. Select the figure from the four alternatives (a), (b), (c), (d) which satisfies the same conditions of placement of dots as in fig. (X).

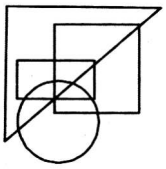
60.



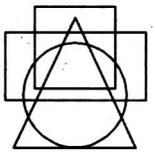
(X)



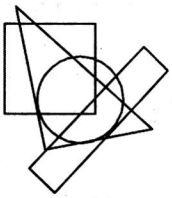
(a)



(b)



(c)



(d)

PHYSICS

61. In the steam engine, most of the heat energy is converted into _____ .

(a) electrical energy (b) light energy (c) sound energy (d) mechanical energy

62. During the day time, mid day is hotter than early moring or late evening. It is

(a) due to the sun's rays that fall normally on the surface of earth during mid day

(b) due to the sun's rays that fall obliquely during the early morning (or) late evening

(c) not concerned with how the light rays fall

(d) Both (a) and (b)

63. Motion of a stone dropped from the top of a tower is an example of →

(a) Uniform motion (b) Circular motion

(c) Uniformly accelerated motion (d) None of the above

64. Which among the following is the hottest substance?

(a) Water at 100°C (b) Steam at 100°C

(c) Mercury at 100°C (d) All the above are equally hot

65. The following one determines the direction of flow of heat:

(a) Temperature (b) Thermometer (c) Altimeter (d) Ammeter

66. Geometric centre of a mirror is called _____ .

(a) pole (b) plane (c) optic centre (d) centre of curvature

67. When an object is moved away from a convex miror, the image

(a) becomes smaller (b) moves closer to the focus

(c) becomes inverted (d) Both (a) and (b)

68. **Assertion (A) :** Convex mirrors are used as rear view mirrors in vehicles.

Reason (R) : The field view of convex mirrors is maximum and they form diminished images.

(a) Both A and R are correct, and R is the correct explanation of A

(b) Both A and R are correct, but R is not the correct explanation of A

(c) A is correct but R is incorrect

(d) Both A and R are incorrect

69. The ratio of unit of acceleration and velocity gives unit of the physical quantity _____ .

(a) time (b) frequency (c) amplitude (d) speed

70. A car driver accelerates the car to increase its speed from 30 km h^{-1} to 60 km h^{-1} in 5 mins. Acceleration of car is____.

(a) $\frac{1}{18} ms^2$ (b) $\frac{1}{36} ms^{-2}$ (c) zero (d) $5ms^{-2}$

71. A truck running along a straight line increases its speed uniformly from 30 m/s to 60 m/s over a time interval 1 min. The distance travelled during this time interval is

(a) 900 m (b) 1800 m (c) 2700 m (d) 3600m

72. Distance of the moon from the earth is 4×10^8 m. The time taken by a radar signal transmitted from the earth to reach the moon is

(a) 5.2 s (b) 1.3 s (c) 2.6 s (d) 0.70 s

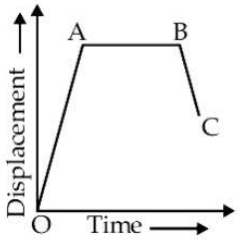
73. A body is dropped from the top of a tower and reaches the ground in 3 sec. Then the height of the tower is :

(a) 44.1 m (b) 40.2 m (c) 62.3 m (d) None of these

74. If two bodies of different masses m_1 and m_2 are dropped from different heights h_1 and h_2, then ratio of the time taken by the two to drop through these distances is

(a) $h_1 : h_2$ (b) $h_2 : h_1$ (c) $\sqrt{h_1} : \sqrt{h_2}$ (d) $h_1^2 : h_2^2$

75. In fig, BC represents a body moving



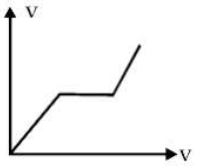
(a) Backward with uniform velocity

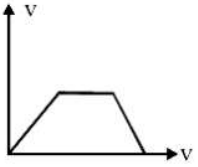
(b) Forward with uniform velocity

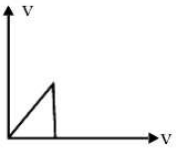
(c) Backward with non-uniform velocity

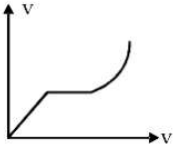
(d) Forward with non-uniform velocity

76. Which of the following graphs would probably show the velocity plotted against time graph for a body whose acceleration-time graph is shown in the figure?

(a) 

(b) 

(c) 

(d) 

77. A wheel is of diameter l m. If it makes 30 revolutions/sec., then the linear speed (in m/s) of a point on its circumference is

(a) 30π (b) π (c) 60π (d) $\pi/2$

78. Quantum theory of light was given by :

(a) Newton (b) Plank (c) Faraday (d) None of these

79. A boy is moving towards a plane mirror with 5 cm/s. What will be the relative speed of the boy w.r.t. the image of the boy :

(a) 5 cm/s (b) 10 cm/s (c) 15 cm/s (d) 20 cm/s

80. Monochromatic light is refracted from air into a medium of refractive index n. The ratio of wavelength of the incident and refracted waves is :

(a) 1 : 1 (b) 1 : n (c) n : 1 (d) n^2 : 1

CHEMISTRY

81. Which among the following acids is present in lemons?

(a) Acetic acid (b) Oleic acid (c) Stearic acid (d) Ascorbic acid

82. Which of the following solutions turn phenolphthalein pink?

(a) Soda water (b) Lime water (c) Common salt (d) Sugar solution

83. Washing soda is _____.

(a) hydrated sodium carbonate (b) anhydrous sodium carbonate

(c) hydrated magnesium sulphate (d) anhydrous magnesium sulphate

84. Which among the following bases is most basic ?

(a) Calcium hydroxide (b) Sodium hydroxide

(c) Potassium hydroxide (d) Copper hydroxide

85. Hydrated salt is _____.

(a) Marble (b) Baking soda (c) Green vitriol (d) All the above

86. Which of the following salts is formed by the neutralisation reaction of Sodium hydroxide and hydrochloric acid?

(a) Sodium chloride (b) Sodium sulphate (c) Sodium nitrate (d) None of these

87. Two Salts "X" and "Y" are taken in two test tubes "A" and "B" respectively and subjected to heating. Water is added to two test tubes. In case of "A" salt regains its original colour and In case of "B" water starts boiling. Then X and Y respectively are :

(a) blue vitriol and lime (b) blue vitriol and baking soda

(c) nitre and lime (d) nitre and washing soda

88. The salt formed by complete neutralization of calcium hydroxide with oxy acid of sulphur having four oxygen atoms is _____.

(a) calcium sulphite (b) calcium bisulphate

(c) calcium sulphate (d) calcium bisulphite

89 Role of nitre in the manufacture of gun powder is _____ .

(a) to supply oxygen (b) to supply nitrogen

(c) to decrease the rate of combustion (d) absorb temperature produced by combustion

90. Identify the acid used in the purification of metals like gold and silver among the following :

(a) sulphuric acid (b) phosphoric acid (c) hydrochloric acid (d) nitric acid

91. Which of the following processes is not involved in the purification of drinking water?

(a) Sedimentation (b) Filtration (c) Chlorination (d) Distillation

92. Metals present in permutit are :

(a) Na and K (b) Na and Al (c) Al and K (d) K and Al

93. Which among the following liquids has the highest specific heat?

(a) Petrol (b) Mercury (c) Oil (d) Water

94. The solvent water is used in the car radiators. Which of the following properties of water is exploited?

(a) High solubility (b) Poor conductivity

(c) Maximum density (d) High specific heat

95. A divalent metal salt X, which contributes to hardness of water, combines with washing soda and forms an insoluble salt Y and common salt. Salt Y is also used for the laboratory preparation of CO_2. Identify X and Y respectively.

(a) $CaSO_4$, $CaCO_3$ (b) $MgSO_4$, $MgCO_3$ (c) $CaCl_2$, $CaCO_3$ (d) $MgCl_2$, $MgCO_3$

96. The amount of heat energy required to increase the temperature of 20 g of water by 1°C is _____ .

(a) 10 cal (b) 20 cal (c) 15 cal (d) 2 cal

97. Arrange the steps in a sequence for the conversion of atmospheric water vapour into underground water.

(1) Infiltration in recharge area (2) Water table

(3) Infiltration in zone of aeration (4) Precipitation

(5) Aquifer

(a) 4 1 3 2 5 (b) 4 3 1 2 5 (c) 4 3 1 5 2 (d) 4 1 3 5 2

98. Water containing salt X, of a divalent metal, when treated with a compound Y gives much lather with soap and forms, insoluble compound Magnesium carbonate and salt of a monovalent metal sulphate. Identify X and Y respectively.

(a) $CaCl_2$, Na_2CO_3 (b) $MgSO_4$, Na_2CO_3

(c) $MgCl_2$, $NaHCO_3$ (d) $CaSO_4$, $Mg(HCO_3)_2$

99. Which of the following is used to protect silk and woollen clothes?

(a) Medicines (b) Salt solution (c) Benzene solution (d) Naphthalene balls

100. Given below are two groups of materials used to make dress articles.

Group I	Group II
Flax	Cotton
Jute	Wool
	Silk

Which of the following does not belong to the group formed by the others?

(a) Leather (b) Flax (c) Cotton (d) Silk

BIOLOGY

101. In which part of chloroplast, light reaction of photosynthesis takes place?

(a) Granum (b) Stroma (c) Both (a) and (b) (d) None of these

102. The equation given below represents photosynthesis.

$$X + \text{Water} \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} \text{Glucose} + Y$$

Which of the following is represented by X and Y in the given equation?

(a) X – Carbon dioxide, Y – Oxygen (b) X – Oxygen, Y – Carbon dioxide

(c) X – Carbon dioxide, Y – Hydrogen (d) X – Oxygen, Y – Nitrogen

103. The balanced chemical equation of photosynthesis is :

(a) $6CO_2 + 6H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + 12H_2O + O_2$

(b) $6CO_2 + 12H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + 6O_2 + 6H_2O$

(c) $CO_2 + H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + O_2 + H_2O$

(d) $12CO_2 + 6H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} 12C_6H_{12}O_6 + 12O_2 + 12H_2O$

104. Which of the following is/are saprotrophic organism(s)?

(a) *Agaricus* (b) Few bacteria (c) Both (a) and (b) (d) Green plants

105. Which component of food gets digested in human stomach?

(a) Only carbohydrates (b) Mainly proteins

(c) Mainly fats (d) None of the above

106. Name the largest gland of the alimentary canal?

(a) Large intestine (b) Small intestine (c) Liver (d) Stomach

107. The process of breakdown of pyruvate into carbon dioxide, water and energy takes place in _____ of cell.

(a) Mitochondria (b) Cytoplasm (c) Chloroplast (d) Nucleus

108. The human lungs always contain a certain volume of air so that there is sufficient time for oxygen to be absorbed and for the carbon dioxide to be released which is known as :

(a) Residual volume (b) Tidal volume

(c) Total lung capacity (d) None of these

109. Which of the following is/are adaptive characteristic(s) of elephants?

(a) They have long trunk which is used for picking food.

(b) They have strong tusks used to tear barks of the tree for eating.

(c) They have large ears to release heat and hear very soft sounds.

(d) All of the above.

110. The air entering the human body gets filtered by:

(a) fine hair and mucus in the nostrils (b) mucus in the lungs

(c) chemicals present in the trachea (d) both (a) and (b)

111. The energy change in photosynthesis is from

(a) Light energy to electrical energy (c) Light energy to chemical energy

(b) Light energy to molecular energy (d) Light energy to activation energy

112. Stomata controls

(a) the loss of food material from the plant (b) the loss of water from the plant

(c) the loss of air from the plant (d) the loss of energy from the plant

113. Each stoma is guarded by

(a) Guard cell (b) Palisade cell (c) Mesophyll cell (d) Parenchyma cell

114. Each guard cell contains

(a) Leucoplasts (b) Chloroplasts

(c) Chromoplasts (d) Oil and protein granuels

115. The process, by which green plants prepare their own food is known as

(a) photosynthesis (b) respiration (c) Symbiosis (d) none of these

116. Which of the following is the most common respiratory substrate?

(a) Vitamins (b) Fats (c) Glucose (d) Proteins

117. The process in which food is oxidised and energy is released is called

(a) excretion (b) respiration (c) digestion (d) transpiration

118. The end proucts of aerobic respiration are

(a) only carbon dioxide (b) carbon dioxide and water

(c) carbon dioxide, water and energy (d) energy and carbon dioxide

119. The process in which only exchange of gases takes place is called

(a) respiration (b) breathing

(c) combustion (d) internal respiration

120. Respiration is a process opposite to

(a) blood circulation (b) digestion (c) photosynthesis (d) none of these

MATHEMATICS

121. Which of the following does not represent pair of integer (a, b) such that a ÷ b = 2?

(a) (–6, –3) (b) (–2, 1) (c) (–10, –5) (d) (8, 4)

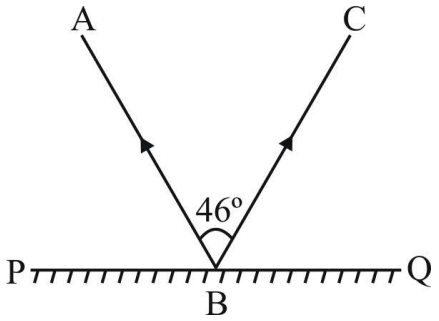
122. If x : y = 5 : 2 then (8x + 9y) : (8x + 2y) is :

(a) 22 : 29 (b) 26 : 61 (c) 29 : 22 (d) 61 : 26

123. Which integer should be added to –5 to get 4?

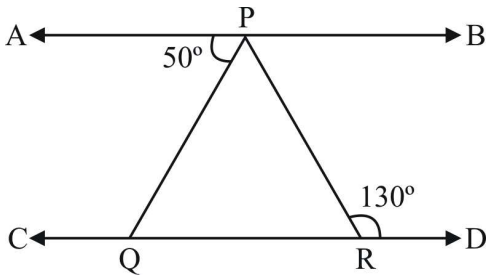
(a) 1 (b) –1 (c) –9 (d) 9

124. In the given figure PQ is a mirror, AB is the incident ray and BC is the reflected ray. ∠ABC = 46° then ∠ABP is equal to :



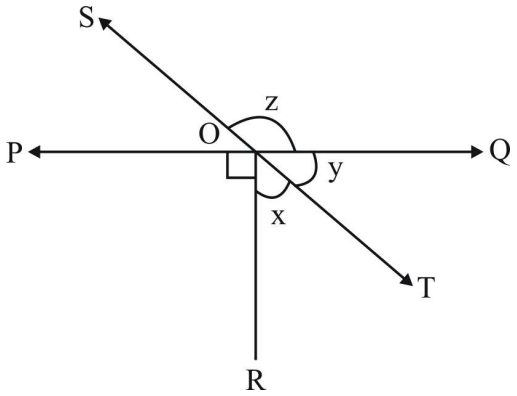
(a) 44° (b) 67° (c) 13° (d) 62°

125. AB || CD, ∠APQ = 50° and ∠PRD = 130° then ∠QPR is :



(a) 130° (b) 50° (c) 80° (d) 30°

126. In fig. line PQ and ST intersect at O if ∠POR = 90° and x : y = 3 : 2, then z is equal to :



(a) 126° (b) 144° (c) 136° (d) 154°

127. If two supplementary angles are in the ratio 1: 2 then the bigger angle is:

(a) 120° (b) 125° (c) 110° (d) 90°

128. The points P, Q, R and S lie on a straight line. The ratio of the length of PQ to the length of QR is 3 : 4 and the ratio of the length of PR to the length of RS is 2 : 1. Find the ratio of the length of QR to the length of PS.

(a) 7 : 19 (b) 10 : 21 (c) 21 : 8 (d) 8 : 21

129. Sonu's grandmother is 80 years old and sonu is 20 years old. How many years ago was his grandmother 7 times as old as Sonu?

(a) 8 years (b) 10 years (c) 12 years (d) 15 years

130. The sum of two rational numbers is –7. If one of the numbers is $\frac{-15}{19}$, the other number is:

(a) $\frac{-21}{10}$ (b) $\frac{-57}{16}$ (c) $\frac{7}{9}$ (d) $\frac{-118}{19}$

131. If the mean of 5, 7, x, 10, 5, and 7 is 7, then find the value of x.

(a) 6 (b) 7 (c) 8 (d) 9

132. If the median of $\frac{a}{3}, \frac{a}{2}, \frac{a}{4}, \frac{2a}{5}, \frac{a}{6}$ is 12, then find the value of a (a > 0).

(a) 36 (b) 48 (c) 30 (d) 24

133. The value of $\frac{2^{2001}+2^{1999}}{2^{2000}-2^{1998}}$, is:

(a) 2 (b) $\frac{10}{3}$ (c) $2^{1000}+1$ (d) 10

134. The value of $\frac{(67.542)^2-(32.458)^2}{75.458-40.374}$ is:

(a) 1 (b) 10 (c) 100 (d) none

135. Find the values of x and y, which satisfies the simultaneous equations 2006x + 2007 y = 8024 and 2007x + 2006y = 8028.

(a) x = 4, y = 0 (b) x = 0, y = 4 (c) x = y = 4 (d) x = y = 0

136. If $x+\frac{1}{x}=6$, then find $x^2+\frac{1}{x^2}$.

(a) 34 (b) 36 (c) 32 (d) 38

137. If $x+\frac{1}{x}=2$, then find $x^{100}-\frac{1}{x^{100}}=$ _____

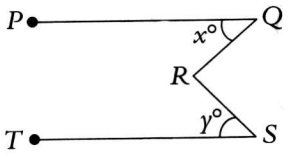
(a) 0 (b) 1 (c) 2 (d) 2100

138. Ajay and Vijay have 25 chocolates in total. If Ajay gives 3 chocolates to Vijay, then the number of chocolates with them is in the ratio 2 : 3. Find the number of chocolates with Ajay and Vijay, respectively.

(a) 20, 30 (b) 15, 10 (c) 10, 15 (d) None of these

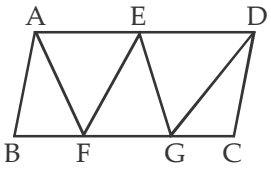
139. In the figure below (not to scale), $\overline{PQ} \parallel \overline{TS}$, reflex ∠QRS = 300°, and x – y = 30°. The measure

of y will be ____.



(a) 25° (b) 15° (c) 20° (d) 30°

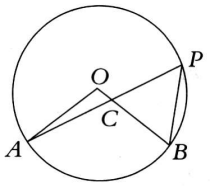
140.



In the figure above (not to scale), $\overline{EF} \parallel \overline{GD}$, $\overline{AF} \parallel \overline{EG}, \overline{AD} \parallel \overline{BC}$ and ∠DCG = 100°. If ∠CDG = 40°, then find ∠AEF.

(a) 30° (b) 40° (c) 150° (d) 60°

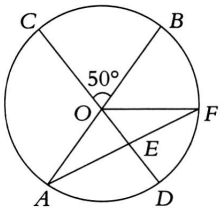
141.



In the above figure (not to scale), O is the centre of the circle. $\overline{AP}$ and $\overline{BP}$ are two chords. C is the point of intersection of $\overline{AP}$ and $\overline{OB}$. If ∠OAC = 30° and ∠PBC = 80°, then ∠AOB = ___.

(a) 110° (b) 100° (c) 130° (d) 120°

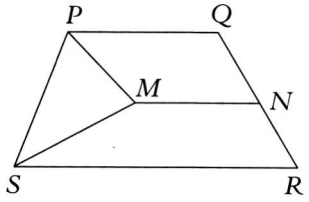
142.



In the above figure, O is the centre of the circle, AB and CD are diameters, ∠COB = 50°. If E is the midpoint of AF, then find ∠ADF.

(a) 130° (b) 100° (c) 110° (d) 120°

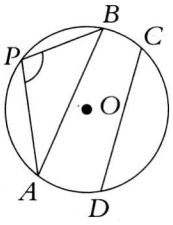
143.



In the given figure, PQRS is an isosceles trapezium and $\overline{PQ} \| \overline{SR} \| \overline{MN}$. If ∠SPM = 70° and ∠PQR = 110°, then find ∠PMN.

(a) 140° (b) 150° (c) 120° (d) 100°

144.



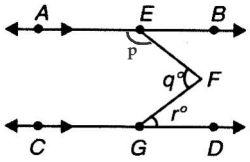
In the above figure, O is the centre of the circle and AB = CD. if ∠APB = 110°, then find the angle made by the chord CD at the centre.

(a) 220° (b) 110° (c) 120° (d) 140°

145. For what value of x which satisfy the equation $\frac{2}{3x-2} = \frac{3}{x-6}$ is _____

(a) $\frac{6}{7}$ (b) $\frac{7}{6}$ (c) $\frac{-6}{7}$ (d) $\frac{-7}{6}$

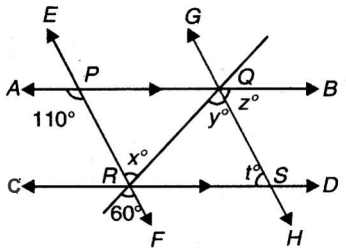
146. In the given figure, AB || CD, then which of the following is true :



(a) p + q − r = 180° (b) p + q + r = 180°

(c) p − q + r = 180° (d) p + q − 2r =180°

147. In the given figure AB || CD and EF || GH. The values of x, y, z and t are respectively.



(a) 65, 75, 75, 60 (b) 50, 75, 75, 65 (c) 60, 70, 60, 70 (d) 60, 60, 70, 70

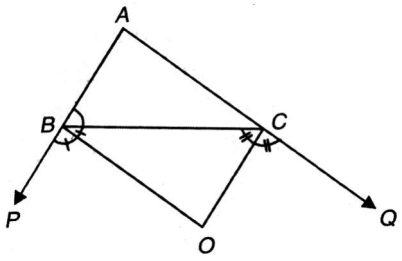
148. If $\frac{(\sqrt{a}-\sqrt{b})^2+4\sqrt{ab}}{a-b}=\frac{5}{3}$ then the value of a:b is,

(a) 16 : 1 (b) 1 : 4 (c) 4 : 1 (d) 15 : 1

149. One-third of a number is subtracted from three times the numbers, the result is 800. Find the number.

(a) 300 (b) 400 (c) 200 (d) 600

150. In figure, side AB and AC of a ΔABC are produced to P and Q respectively. The bisectors of ∠PBC and ∠QCB intersect at O. Then ∠BOC is equal to:



(a) $90°-\frac{1}{2}\angle BAC$ (b) $\frac{1}{2}(\angle PBC+\angle QCB)$

(c) $90°+\frac{1}{2}\angle BAC$ (d) None of these