BIG BANG
EDGE TEST

SAMPLE PAPER

For Students presently in Class VII

Paper 2 - NTSE Science & Mathematics

Duration : 90 minutes

Paper Code: 78-2

Maximum Marks : 72

Please read the instructions and guidelines carefully :

Important Note : Please ensure to accurately input the details for the Question Paper Code as indicated at the top of this sheet (Side 2) into the corresponding columns / fields on the OMR sheet before proceeding with the paper. Incorrectly filled information regarding the class or paper may result in inaccurate outcomes or results.

"This paper has been scientifically designed to evaluate your potential – manifested and hidden for the target examinations mentioned in various sections of the paper. Thus, your adherence to the instructions is critical in the evaluation of the same"

1. This Question paper consists of 2 sections.
2. Student should devote allotted time for each section. If a section is easy, then it is easy for everyone & was meant to be like that with a goal in mind. Do not switch over to another section if you find the section to be easy. If a section is tough, then it is tough for everyone. Please note that each section has been allocated a time limit of 45 minutes. Dedicating the full 45 minutes to finish each section successfully is essential. Opening the next section before completing the allotted time for the preceding section is not permitted. This adherence is crucial for assessing your true potential, as each section is meticulously crafted to evaluate your potential for the corresponding competitive examinations.
3. Candidate should open the seal of Section-II only after completing 45 minutes of Section-I.
4. Sheets will be given to each candidate for rough work. Candidate must fill all details on the rough sheet and submit the same to invigilator along with OMR sheet. Candidate must mention the Question No. while doing the rough work in the sheet.
5. Please note candidates are not allowed to bring any prohibited items into the exam hall such as electronic devices, mobile phones, smart watch, earphones, calculators, books, notes, formula sheets, and bags.
6. Marking scheme is given in table below:

Section	Subject	Question no.	Marking Scheme for each question	
			Correct answer	Wrong answer
SECTION – I (NTSE-Science) Time Allotted: 45 Minutes	PHYSICS (Part-A)	1 to 12	+1	0
	CHEMISTRY (Part-B)	13 to 24	+1	0
	BIOLOGY (Part-C)	25 to 36	+1	0
SECTION – II (NTSE-Mathematics) Time Allotted: 45 Minutes	MATHEMATICS (Part-A)	37 to 72	+1	0

Section – I

Time: 45 Minutes

PHYSICS (PART – A)

*This part contains **12 Multiple Choice Questions** number **1 to 12.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. 50°C is equivalent to:
   (A) 323 K (B) 50°F
   (C) 310 K (D) 118°F

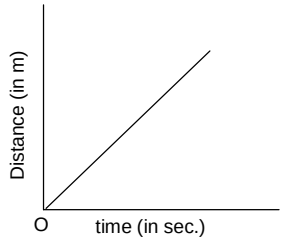
2. Air moving gently (with low speed) is called
   (A) storm (B) Kalbaisakhi
   (C) breeze (D) all of these

3. Water has maximum density at:
   (A) 0°C (B) 100°C
   (C) 4°C (D) –273°C

4. Heat is a form of:
   (A) energy (B) friction
   (C) electricity (D) none of these

5. The presence of water vapour in air is called:
   (A) humidity (B) liquefied air
   (C) hydrated air (D) none of these

6. Slope of the given graph gives:
   (A) distance
   (B) speed
   (C) displacement
   (D) none of these



7. A boy covers 50 m in 10 seconds, 40 m in next 10 seconds and 30 m in last 10 seconds. Calculate his average speed:
   (A) 4 m/s (B) 12 m/s
   (C) 6 m/s (D) 8 m/s

8. Which among the following temperature will be the lowest?
   (A) –2°C (B) 105 K
   (C) –4°F (D) –10°C

9. At which temperature both Fahrenheit and Kelvin scale becomes equal?
   (A) 574.25 (B) –40
   (C) 212.15 (D) 373.15

10. Arrange the following speeds in ascending order:
    27 km/h, 7 m/s, 400 m/min
    (A) 27 km/h < 7 m/s < 400 m/min (B) 7 m/s < 400 m/min < 27 km/h
    (C) 400 m/min < 7 m/s < 27 km/h (D) 7 m/s < 27 km/h < 400 m/min

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11. If the minute hand of a clock is 7 cm long then what will be the distance covered by its tip from 9:00 AM to 9:30 AM?
(A) 14 cm (B) 7 cm
(C) 22 cm (D) none of these

12. A boy goes from his house to his school at a speed of 18 km/h and reaches there in 20 minutes. How far is the school from his house?
(A) 7 km (B) 6 km
(C) 8 km (D) 3 km

CHEMISTRY (PART – B)

*This part contains **12 Multiple Choice Questions** number **13 to 24.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

13. Which physical state of matter is highly stable?
(A) solid (B) liquid
(C) gas (D) plasma

14. Which process do naphthalene balls undergo when left open?
(A) Freezing (B) Melting
(C) Sublimation (D) Vaporization

15. Burning of candle involves
(A) physical change (B) chemical change
(C) both (A) & (B) (D) none of these

16. Which acid is found in curd?
(A) Acetic acid (B) Lactic acid
(C) Formic acid (D) Citric acid

17. Which acid does our stomach produce?
(A) Sulphuric acid (B) Hydrochloric acid
(C) Nitric acid (D) Carbonic acid

18. What is the taste of bases?
(A) sweet (B) sour
(C) salty (D) bitter

19. What is the colour of methyl orange in basic solution?
(A) red (B) orange
(C) yellow (D) green

20. Which one of the following acids is inorganic?
(A) acetic acid (B) carbonic acid
(C) lactic acid (D) citric acid

21. Lime stone is chemically
(A) CaO (B) $Ca(OH)_2$
(C) $CaCO_3$ (D) $Ca(HCO_3)_2$

22. Heating an iron rod to red hot is a _____ change.
(A) chemical (B) physical
(C) both (A) and (B) (D) none of these

23. Ammonium chloride sublimes on heating. It is a _____ change
(A) physical (B) chemical
(C) both (A) and (B) (D) all the three

24. Which one among the following is an element?
(A) Water (B) Air
(C) Soil (D) Metal

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BIOLOGY (PART – C)

*This part contains **12 Multiple Choice Questions** number **25 to 36.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

25. Alimentary canal is usually longer in __
(A) Carnivores (B) Herbivores
(C) Omnivores (D) Insectivores

26. Chlorophyll molecules are green in colour and thus they:
(A) Transform green light (B) Transmit green light
(C) Absorb green light (D) Reflect green light

27. Cactus stems may be modified into photosynthetic
(A) Spines (B) Cladophylls
(C) Tendrils (D) Root

28. Digestion is
(A) Conversion of large food particle into small food particles
(B) Conversion of small food particles into large food particles
(C) Conversion of food into protoplasm
(D) Conversion of non – diffusible food particles into diffusible food

29. In humans, digestion of food is completed in
(A) Mouth (B) Stomach
(C) Large intestine (D) Small intestine

30. Food bolus after passing through alkaline medium in the alimentary canal is
(A) Chylomicron (B) Chyme
(C) Chyle (D) Fat body

31. The green pigment that is present in the leaves is called
(A) Haemoglobin (B) Globulin
(C) Albumin (D) Chlorophyll

32. Gastric digestion takes place efficiently in
(A) acidic medium (B) alkaline medium
(C) neutral medium (D) highly alkaline medium

33. Which is not digested by human?
(A) Protein (B) Fats
(C) Glucose (D) Cellulose

34. Read carefully the terms given below. Which of the following set is the correct combination of organs that do not carry out any digestive functions?
(A) Oesophagus, Large Intestine, Rectum (B) Buccal Cavity, Oesophagus, Rectum
(C) Buccal Cavity, Oesophagus, Large Intestine (D) Small Intestine, Large Intestine, Rectum

35. The mode of nutrition in which organism obtains its food from dead and decayed plant and animals called .
(A) Saprotrophic (B) Autotrophic
(C) Holozoic (D) All of these

36. The process by which green plants make their own food from CO_2 and H_2O by using sunlight energy in presence of chlorophyll is called
(A) Nutrition (B) Heterotrophic
(C) Autotrophic (D) Photosynthesis

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Section – II

Time: 45 Minutes

MATHEMATICS (PART – A)

*This part contains **36 Multiple Choice Questions** number **37 to 72.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

37. A number whose reciprocal does not exist is
(A) 1 (B) -1
(C) 0 (D) none of these

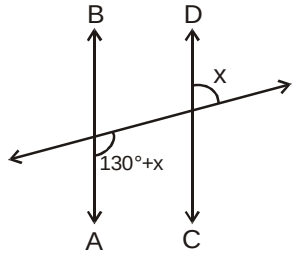
38. The greatest among the following is:
(A) 0.2 (B) $1 \div 0.2$
(C) $0.\overline{2}$ (D) $\left(0.0\overline{2}\right)$

39. If the numbers $\frac{4}{5}$, 0.81 and 0.801 are arranged from smallest to largest then the correct order is
(A) $\frac{4}{5}, 0.81, 0.801$ (B) $0.81, 0.801, \frac{4}{5}$
(C) $0.801, \frac{4}{5}, 0.81$ (D) $\frac{4}{5}, 0.801, 0.81$

40. Which of the following is reflex angle?
(A) 135° (B) 75°
(C) 175° (D) 195°

41. Two lines in a plane which never intersect each other are called
(A) perpendicular lines (B) intersecting lines
(C) parallel lines (D) None of these

42. If AB || CD, then the value of x is
(A) 25° (B) 35°
(C) 30° (D) 40°



43. Suppose $a = \frac{2}{3}b,\ b = \frac{2}{3}c,$ and $c = \frac{2}{3}d,$ what would be the value of b as a fraction of d?
(A) $\frac{2}{3}$ (B) $\frac{4}{3}$
(C) $\frac{4}{9}$ (D) $\frac{8}{27}$

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44. Sanjay earns twice as much on Sunday as on each of the other days of the week. If he works on all 7 days of week then what fraction of total income he earns on Sunday?

(A) $\frac{2}{7}$ (B) $\frac{1}{4}$

(C) $\frac{1}{3}$ (D) None of these

45. If $x = \frac{1}{4}$ and $y = \frac{3}{2}$ then $\frac{x+y}{x-y} = ?$

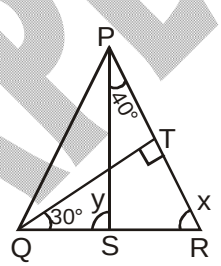
(A) $\frac{6}{5}$ (B) $\frac{10}{3}$

(C) $\frac{-5}{4}$ (D) $\frac{-7}{5}$

46. If QT $\perp$ PR, $\angle$TQR = 30° and $\angle$SPR = 40°, then y =

(A) 80° (B) 90°

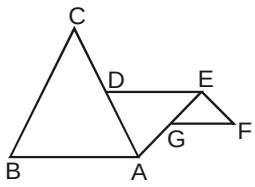
(C) 100° (D) 60°



47. Given ABC, ADE and EFG are all equilateral triangles. Points D and G are midpoints of AC and AE, respectively. If AB = 4, then find the perimeter of the given figure.

(A) 5 cm (B) 15 cm

(C) 30 cm (D) 18 cm

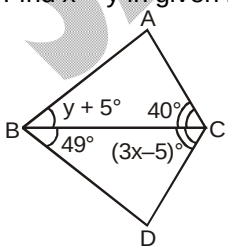


48. $\frac{3}{4} \div 2\frac{1}{4}$ of $\frac{2}{3} - \frac{\frac{1}{2}-\frac{1}{3}}{\frac{1}{2}+\frac{1}{3}} \times 3\frac{1}{3} + \frac{5}{6} = ?$

(A) $\frac{7}{18}$ (B) $\frac{49}{54}$

(C) $\frac{2}{3}$ (D) $\frac{1}{6}$

49. Find x + y in given figure. If $\Delta ABC \cong \Delta DBC$



(A) 89° (B) 105°

(C) 59° (D) 119°

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50. Value of $\frac{9|3-5|-5|4|\div 10}{-3(5)-2\times 4\div 2}$ is

(A) $\frac{9}{10}$ (B) $-\frac{8}{17}$

(C) $-\frac{16}{19}$ (D) $\frac{4}{7}$

51. If $\frac{2x-3}{3x+2}=\frac{-2}{3}$ then $x=?$

(A) $\frac{5}{10}$ (B) $\frac{5}{12}$

(C) $\frac{11}{5}$ (D) $\frac{5}{11}$

52. Complementary angle of $35^{o}55'$ is

(A) $54^{o}45'$ (B) $54^{o}5'$

(C) $64^{o}45'$ (D) $144^{o}5'$

53. If x is a positive integer then which of the following fractions is greatest?

(A) $\frac{x}{x}$ (B) $\frac{x+1}{x}$

(C) $\frac{x}{x+1}$ (D) $\frac{x+2}{x+3}$

54. Find P – Q, P = $26\div(13\div 4)$, Q = $(26\div 13)\div 4$

(A) 0 (B) 6

(C) 7.5 (D) 8

55. If an angle is 30° more than one half of its complement, then the angle is

(A) 40° (B) 50°

(C) 60° (D) 70°

56. Mean of x and $\frac{1}{x}$ is k, then find the mean of x^2 and $\frac{1}{x^2}$.

(A) k^2-1 (B) $2k^2-2$

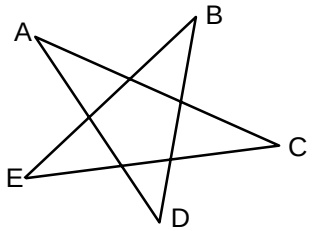
(C) k^2-2 (D) $2k^2-1$

57. If all the altitudes of a triangle are equal, then the triangle is

(A) Scalene (B) Isosceles

(C) Right angled (D) Equilateral

58. Calculate $\angle A+\angle B+\angle C+\angle D+\angle E$



(A) 180º (B) 360º

(C) 90º (D) 45º

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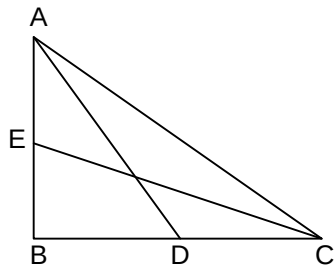
59. In a solution of 45 litres of milk and water, 40% is water. How many litres of milk must be added to become the ratio of milk and water 5 : 3 ?
(A) 8 (B) 3
(C) 7 (D) 6

60. Given that a varies directly with the cube of b when a is 3, b is also 3. Find b when a is 24
(A) 4 (B) 3
(C) 6 (D) 8

61. In the figure, ΔABC is a right Δ and right angled at B. AD & CE are the two medians drawn from A and C respectively. If AC = 5 cm and AD $= \frac{3\sqrt{5}}{2}$ cm. Then the length of CE will be

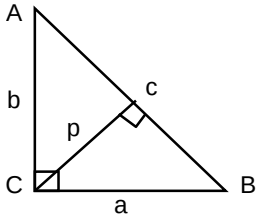


(A) $4\sqrt{5}$ cm (B) $2\sqrt{5}$ cm
(C) $\frac{3\sqrt{5}}{2}$ cm (D) $6\sqrt{5}$ cm

62. The simplified value of $\frac{\frac{1}{3}\div\frac{1}{3}\times\frac{1}{3}}{\frac{1}{3}\div\frac{1}{3}\text{ of }\frac{1}{3}}-\frac{1}{9}$ is

(A) 0 (B) $\frac{1}{9}$
(C) $\frac{1}{3}$ (D) 1

63. ABC is a right angled triangle, right angled at C and P is the length of perpendicular from C on AB. If a, b and c are the length of the sides BC, CA and AB respectively. What is the relation between a, b and P ?



(A) $\frac{1}{P}=\frac{1}{a}+\frac{1}{b}$ (B) $\frac{1}{P}=\frac{1}{a}-\frac{1}{b}$
(C) $\frac{1}{P^2}=\frac{1}{a^2}+\frac{1}{b^2}$ (D) $\frac{1}{P^2}=\frac{1}{a^2}-\frac{1}{b^2}$

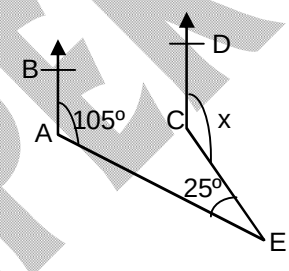
64. Mean of 9 observations was found to be 35. Later on, it was detected that an observation 81 was misread as 18, then the correct mean of the observations is
(A) 40 (B) 41
(C) 42 (D) 43

65. One fourth of a certain number added to one-third of it, gives 49, then the number is
(A) 12 (B) 64
(C) 84 (D) 96

66. Sum of three consecutive even numbers is 66. Find the greatest of them
(A) 24 (B) 22
(C) 20 (D) 26

67. If $\frac{a}{b}=\frac{x}{y}=\frac{p}{q}$, then $\frac{6a+9x+2p}{6b+9y+2q}$
(A) $\frac{a}{b}$ (B) $\frac{x}{y}$
(C) $\frac{p}{q}$ (D) all of these

68. In the given figure, if AB || CD, then the value of x is
(A) 120º
(B) 130º
(C) 140º
(D) 100º



69. If $p = (-1)^{205}$ and $q = (-1)^{202}$, then p + q is
(A) $(-1)^{407}$ (B) $(-1)^4$
(C) 0 (D) none of these

70. In an arranged discrete series in which total number of observations .n. is even, median is
(A) $\frac{n}{2}$ th item (B) $\left(\frac{n}{2}+1\right)$ th item
(C) The mean of $\frac{n}{2}$ th and $\left(\frac{n}{2}+1\right)$ th item (D) none of these

71. Two angles are supplementary and the larger is 30º less than two times the smaller. Then the value of larger angle will be
(A) 100º (B) 110º
(C) 80º (D) 120º

72. In a frequency distribution, the mid value of a class is 15 and the class interval is 4. The lower limit of the class is :
(A) 10 (B) 12
(C) 13 (D) 14

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For Students presently in Class VII

Paper 2 - NTSE Science & Mathematics

Paper Code: 78-2

ANSWER KEYS

1.	**A**	2.	**C**	3.	**C**	4.	**A**
5.	**A**	6.	**B**	7.	**A**	8.	**B**
9.	**A**	10.	**C**	11.	**C**	12.	**B**
13.	**A**	14.	**C**	15.	**C**	16.	**B**
17.	**B**	18.	**D**	19.	**C**	20.	**B**
21.	**C**	22.	**B**	23.	**A**	24.	**D**
25.	**B**	26.	**D**	27.	**A**	28.	**D**
29.	**D**	30.	**C**	31.	**D**	32.	**A**
33.	**D**	34.	**A**	35.	**A**	36.	**D**
37.	**C**	38.	**B**	39.	**D**	40.	**D**
41.	**C**	42.	**A**	43.	**C**	44.	**B**
45.	**D**	46.	**C**	47.	**D**	48.	**C**
49.	**C**	50.	**C**	51.	**B**	52.	**B**
53.	**B**	54.	**C**	55.	**B**	56.	**D**
57.	**D**	58.	**A**	59.	**B**	60.	**C**
61.	**B**	62.	**A**	63.	**C**	64.	**C**
65.	**C**	66.	**A**	67.	**D**	68.	**B**
69.	**C**	70.	**C**	71.	**B**	72.	**C**

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