ETERNAL OLYMPIAD

KHETRI ROAD, NEEM KA THANA

CLASS – X

(IX to X Moving Students)

SAMPLE PAPER

This Paper contains **60 Multiple Choice Questions**. Each question has four choices (a), (b), (c) and (d) out of which **ONLY ONE** is correct.

SECTION-A (MENTAL ABILITY)

1. In the question, you are given a combination of letters followed by four alternatives (1), (2), (3) and (4). Choose the alternative which most closely resembles the water-image of the given combination. QUARREL

(a)  (b) 

(c)  (d) 

2. The next term in the sequence 1, 3, 6, 11, 20, 37, ?

(a) 65 (b) 67

(c) 70 (d) 60

3. If a certain code PERINATH is written as QFQHOBSG and POLE as QPKD, how will SYNDROME be written in that code?

(a) RXONQNNF (b) TZODQNLD

(c) TZMCSPKD (d) TZMCSPLD

4. In the following question, there are two numbers to the left of the sign : : which are connected in some way. The same relationship is between the third number and one of the four alternatives given. Find the correct alternative.

11 : 17 : : 19 : ?

(a) 29 (b) 27

(c) 23 (d) 21

5. Ankit moves towards East a distance of 5 m, then he turns to his left and walks 20 metres, then again he turns left and walks 15 meters. Now he turns 45° towards his right and goes straight to cover 20 m meters. How far is he from his starting point?

(a) 40 m (b) 30 m

(c) 50 m (d) 55 m

4. Count each 1 in the following sequence of numbers that is immediately followed by 2, if 2 is not immediately followed by 3. How many such 1's are there?

1 2 1 3 4 5 1 2 3 5 2 1 2 6 1 4 5 1 1 2 4 1 2 3 2 1 7 5 2 1 2 5

(a) 2 (b) 4 (c) 5 (d) 7

5. In a certain code STATION is denoted by URCRKMP then BRING is denoted in the same code by

(a) CSKLH (b) DSGLH

(c) KSKPH (d) None of these

6. If at 12'O clock, minute hand and hour hand are facing towards North, then in which direction the minute hand is facing at 4 : 40 ?

(a) 30° West of South (b) 60° West of South

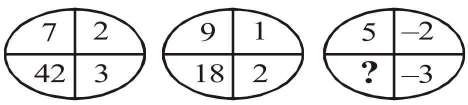
(c) 30° East of South (d) 60° East of South

7. At 5'O clock, the hour hand of a wrist watch is towards North direction, find the direction of the minute hand at 7 : 17 : 30.

(a) West (b) North – East

(c) North – West (d) South - West

8. Which number should come in place of question mark (?)



(a) 18 (b) 13

(c) 30 (d) –30

9. How many numbers amongst the numbers 9 to 54 are there which are exactly divisible by 9 but not by 3?

(a) 8 (b) 6

(c) 5 (d) Nil

10. If each vowel of the word WEBPAGE is substituted with next letter of the English alphabetical series, and each consonant is substituted with the letter preceding it, which of the following letters will appear thrice?

(a) G (b) F (c) Q (d) V

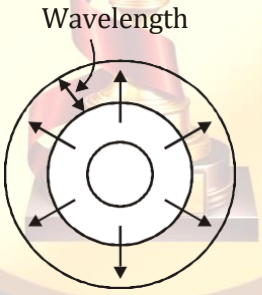
SECTION-B (PHYSICS)

11. A boy is sitting in a train looking out the window at another train a few feet away. Both trains have stopped at a station. Slowly, one of the trains starts to move, but the boy cannot tell if it is his train or the other one. What can he do to tell which train is moving?

(a) Close his eyes.
(b) See if a coin falls straight down.
(c) Look at the ground outside.
(d) Look at the seat across the aisle.

Comprehension for (Q.No.12 to Q.No.13)

The speed of periodic wave motion is related to the frequency and wavelength of the waves. We can understand this by considering the simple case of water waves. Imagine that we fix our eyes on a stationary point on the surface of water and observe the waves passing by this point. We can measure how much time passes between the arrival of one crest and the arrival of the next one (the period), and also observe the distance between two consecutive crests (the wavelength). We know that speed is defined as distance divided by time. In this case, the distance is one wavelength and the time is one period, so wave speed = wavelength/period.



Since period is equal to the inverse of frequency, the formula can also be written as Wave speed = wavelength × frequency This relationship holds true for all kinds of waves, whether they are water waves, sound waves, or light waves.

12. If a train of length 63 m having 7 freight cars rolls by you at the rate of three cars each second, what is the speed of the train?

(a) 6 m/s (b) 7 m/s (c) 21 m/s (d) 42 m/s

13. Suppose a sound wave and an light wave have the same frequency. Which has the longer wave- length?

(a) Sound wave (b) Light Wave
(b) Both have same wavelength (d) Data insufficient

14. Which of these types of image is possible with a diverging mirror?

(a) a real image that is smaller than the object (b) an upside-down image
(c) a virtual image larger than the object (d) a virtual image smaller than the object

15. An incident ray of light is initially normal to the surface of a plane mirror. The mirror is rotated until the angle between the incident and reflected rays is 30°. The mirror has been rotated through an angle of

(a) 7.5° (b) 15° (c) 30° (d) 45°

16. Two sounds of same pitch and loudness may differ in their

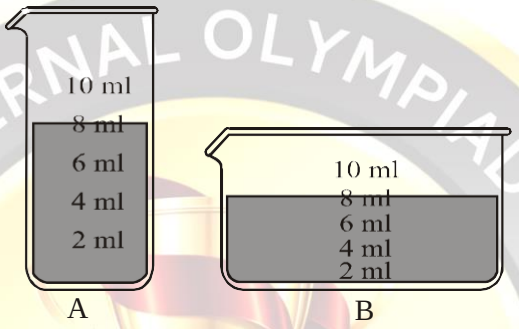
(a) Amplitudes of waves (b) Frequencies of waves
(c) Shapes of waves (d) Both 1 and 2

17. A 350 m long train passes over a 250 m long bridge at a speed of 54 km/h. How long will it take to cross the bridge ?
(a) 40 minutes (b) 2/3 second
(c) 2/3 hr (d) 1/90 hr

18. The following forces act on an object: 13.5 N towards West, 21.2 N towards East, 33.0 N towards East, and 25.3 N towards West. Calculate the net force acting on the object.
(a) 15.4 N towards West (b) 15.4 N towards East
(c) 23.6 N towards West (d) 23.6 N towards East

19. How could you decrease the pressure exerted on the bottom of a glass of water?
(a) By pouring more water into the glass
(b) By putting the glass on a large surface area
(c) By putting the glass on a small surface area
(d) By drinking some of the water

20. In these two pictures, where is the water pressure the greatest?



(a) The bottom of beaker A (b) The bottom of beaker B
(c) The top of beaker A (d) The top of beaker B

SECTION-C (CHEMISTRY)

21. Which metal is stored in kerosene oil?
(a) Na (b) Mg (c) Ca (d) None of these

22. Strong acid+Weak base $\longrightarrow$ Y+ H_2O+Heat the substance Y is
(a) Neutral salt (b) Basic salt
(c) Acidic salt (d) Double salt

23. Electrolysis of water is
(a) Physical change (b) Chemical change
(c) Both 1 and 2 (d) None of these

24. Which gas is evolved when potassium carbonate is treated with dilute HCl?
(a) Hydrogen (H_2) (b) Sulphur dioxide (SO_2)
(c) Carbon monoxide (CO) (d) Carbon dioxide (CO_2)

25. Column (I) contains inorganic compounds and column (II) contains their uses.

Column (I)		**Column (II)**
(i)	SO_2	(a) In cold drinks
(ii)	CO_2	(b) In glass formation
(iii)	CaO	(c) As bleaching agent in sugar industry

	(i)	(ii)	(iii)
(a)	b	a	c
(b)	a	b	c
(c)	c	a	b
(d)	c	b	a

26. In which of the following cases will the mass of the substance changes?
(a) The freezing of water (b) The burning of wood
(c) The glowing of an electric bulb (d) The melting of ice

27. Fill in the blanks by choosing the option with correct words.
The process of rusting is _____ change. For rusting, both _____ and _____ are required. The salts present in sea water make the process of rusting _____
(a) Chemical, Air, Water, Faster
(b) Physical, Air, Water, Slower
(c) Chemical, Air, Water, Slower
(d) Physical, Air, Water, Faster

Comprehension for (Q.No.28 to Q.No.30)

Though Most metals undergo similar kind of reactions. The "vigour" with which they react is not the same. Some are more reactive than others. Metals along which hydrogen are arranged in order of their reactivity in a series called activity series.

28. Which of the following is most reactive
(a) Sodium (b) Potassium
(c) Calcium (d) Magnesium

29. Which of the following can displace Iron from $FeSO_4$ solution?
(a) Zinc (b) Copper
(c) Silver (d) None of these

30 Coke is
(a) almost pure form of carbon (b) used in the manufacture of steel
(c) obtained during destructive distillation of coal (d) all are correct

SECTION-D (BIOLOGY)

31. Which of the following is not a vector borne disease?
(a) Common cold (b) Malaria
(c) Dengue (d) Sleeping sickness

32. Factor not essential for photosynthesis is
(a) O_2 (b) CO_2
(c) H_2O (d) Chlorophyll

33. Which of the following structures present in a cell is/are not bounded by a membrane?
(a) Nucleolus (b) Ribosomes
(c) Centriole (d) All of the above

34. Antibiotics can be obtained from
(a) Bacteria (b) Fungi
(c) Protozoan (d) Both 1 and 2

35. Choose odd option from the following.
(a) Pitcher plant (b) Sundew plant
(c) Venus fly trap (d) Lichen

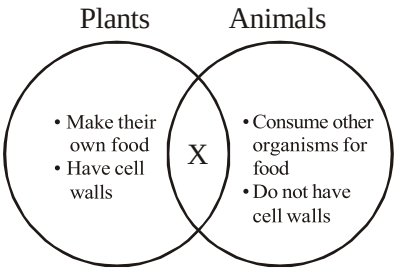
36. Protein coat of a virus enclosing its genetic material is known as
(a) Vector (b) Capsid
(c) Gene (d) None of the above

37. Which one of the following statement about mycoplasma is wrong?
(a) They cause diseases in plants. (b) They are also called PPLO.
(c) They are always aerobic. (d) They are resistant to Penicillin.

38. Adjacent cells in a plant tissue are held together by middle lamella which is mainly made up of
(a) Cellulose (b) Calcium & Magnesium pectate
(c) Hemicellulose (d) Lignin & Suberin

39. Which of the following nutrient is essential for synthesis of chlorophyll in plants?
(a) Na (b) Ca
(c) Fe (d) Mg

40. The Venn diagram given below shows plant and animal characteristics.



Which characteristic shared by plants and animals belongs in the space marked X?

(a) Locomotion (b) Multicellular
(c) Photosynthetic (d) Producer

SECTION-E (MATHS)

41. If $4^{-x} = 16$, then x is

(a) 2 (b) –2 (c) 0 (d) 4

42. The Value of $\sqrt[3]{343} \times \sqrt[3]{-64}\ is.$

(a) 28 (b) –28 (c) 18 (d) –18

43. The dimensions of a photograph are 30 cm× 20 cm. Find the length of the wooden frame needed to frame the photograph

(a) 600 cm (b) 50 cm (c) 100 cm (d) 500 cm

44. The cube root of 27^2 is

(a) 27 (b) 9 (c) 3 (d) None

45. Square of an even number is

(a) An even number (b) An odd number
(c) Sometimes even sometimes odd (d) None of these

46. In the following options, the measures of three angles are given. Which of these can form a triangle?

(a) 45º, 61º, 73º (b) 63º, 37º, 80º
(c) 30º, 20º, 125º (d) 59º, 72º, 61º

47. How many metres of a carpet 60 cm wide will be required to cover the floor of a room which is 18 metres long and 15 metres broad?

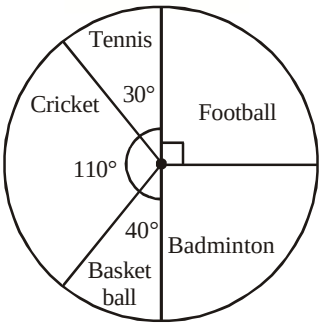
(a) 320 m (b) 360 m
(c) 420 m (d) 450 m

48. Write 3^{12}, 2^{15}, 5^6 in the ascending order.

(a) 5^6, 2^{15}, 3^{12} (b) 5^6, 3^{12}, 2^{15}
(c) 2^{15}, 5^6, 3^{12} (d) 2^{15}, 3^{12}, 5^6

Comprehension for (Q.No.49 & Q.No.50)

The pie graph given below shows the different games played by the students of class IX. Study the pie graph and answer questions below.



49. Which game is played by the least number of students?

(a) Tennis (b) Basketball
(c) Football (d) Badminton

50. If there are 108 students in the class, how many of them play badminton?

(a) 25 (b) 26
(c) 23 (d) 27

SECTION-F (ENGLISH)

51. The child struggled to find a way_____ their feet.

(a) between (b) above

(c) under (d) out

52. There is too_____ sugar in this coffee.

(a) many (b) a little

(c) much (d) every

53. I found out the man_____ had stolen my watch.

(a) which (b) what

(c) who (d) whose

54. A vegetarian is the person who never_____(eat) meat.

(a) eat (b) will eat

(c) eats (d) ate

55. The rich_____ supposed to help the weak students.

(a) is (b) am

(c) are (d) had

56. Write the similar word of 'annexation':

(a) destroy (b) eventually

(c) conquest (d) interest

57. Write the opposite word of 'genuine':

(a) drought (b) industry

(c) produce (d) artificial

58. What _____ you like to take?

(a) can (b) should

(c) would (d) must

59. He is_____ most genuine person I have ever met.

(a) a (b) an

(c) the (d) none

60. Dear Rakesh,

I write this lelter to you. Find out the error.

(a) I (b) write

(c) you (d) this letler