



**Phase – I**

**Question Paper**

**Class - IX**

**M.M:70**

**Time:70 Minutes**

**ENGLISH (10 Marks)**

Q1. Change into indirect speech:

The leader said to his men, "Attack the enemy."

- A) The leader told his men that attack the enemy.
- B) The leader ordered to his men to attack the enemy.
- C) The leader ordered his men to attack the enemy.
- D) The leader asked his man to attack the enemy.

Q2. Change into passive voice:

Take these two pills with warm water.

- A) These two pills were to be taken with warm water.
- B) These two pills should be taken with warm water.
- C) These two pills are taken with warm water.
- D) None of these.

Q3. Choose the one option that best expresses the meaning of the given idiom/phrase:

'Break the ice'.

- A) to stop the conversation
- B) to get the conversation going
- C) to keep silent
- D) to shout

Q4. Fill in the blanks with correct option: (Q4. to Q9.)

Why are you in ..... hurry?

- A) an
- B) the
- C) a
- D) some

Q5. These artists are capable ..... performing for hours at a stretch.

- A) of
- B) from
- C) at
- D) for

Q6. I ..... like to read this new book.

- A) can
- B) could
- C) would
- D) shall

Q7. .... it was very hot in the room, he would not loosen his tie.

- A) Since
- B) In order to
- C) As
- D) Unless

Q8. When I last saw him, he ..... in Delhi.

- A) had been living
- B) was living
- C) lived
- D) had lived

Q9. I remember ..... her in the park.

- A) seeing
- B) see
- C) to see
- D) have seen

Q10. Identify the underlined clause by choosing the best option:

It seems that it will rain today.

- A) Noun clause
- B) Adjective clause
- C) Adverb clause
- D) Principal clause

## MATHEMATICS (20 Marks)

- Q11.  $5^{100} + 25^{50} + 3(125^{34}/25) = ?$
- A)  $3^{104}$   
B)  $5^{106}$   
C)  $5^{101}$   
D)  $5^{102}$
- Q12. What is the remainder when  $9^1 + 9^2 + 9^3 + \dots + 9^8$  is divided by 6?
- A) 3  
B) 2  
C) 0  
D) 5
- Q13. If  $a^{x-1} = bc$ ,  $b^{y-1} = ca$  and  $c^{z-1} = ab$  then  $xy + yz + zx = ?$
- A)  $xyz$   
B)  $x^2y^2z^2$   
C)  $2xyz$   
D)  $\frac{1}{xyz}$
- Q14. If  $a + b + c = 0$ , then what is the value of:  
 $a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 = ?$
- A) 3  
B) 0  
C) 4  
D) 8
- Q15. If  $a = \frac{xy}{x+y}$ ,  $b = \frac{xz}{x+z}$  and  $c = \frac{yz}{y+z}$ , where  $a$ ,  $b$  and  $c$  are non-zero, then what is  $x$  equal to ?
- A)  $\frac{2abc}{ac + bc - ab}$   
B)  $\frac{2abc}{ab - ac - bc}$   
C)  $\frac{2abc}{ab + bc + ac}$   
D)  $\frac{2abc}{ab + ac - bc}$
- Q16.  $x$  and  $y$  are 2 different digits. If the sum of the two digit numbers formed by using both the digits is a perfect square, then value of  $x + y$  is :
- A) 10  
B) 11  
C) 12  
D) 13

- Q17. If P is a point inside the scalene triangle ABC such that  $\Delta APB$ ,  $\Delta BPC$  and  $\Delta CPA$  have the same area then P must be:
- A) incentre of  $\Delta ABC$
  - B) circumcentre of  $\Delta ABC$
  - C) centroid of  $\Delta ABC$
  - D) orthocentre of  $\Delta ABC$
- Q18. Four congruent triangular corners are cut off a rectangle of dimensions  $11\text{cm} \times 13\text{cm}$ . The resulting Octagon has eight edges of equal length. The length of the edge of octagon is:
- A) 7cm
  - B) 5cm
  - C) 4cm
  - D) 8cm
- Q19. ABCD is a rectangle such that  $AC + AB = 5AD$  and  $AC - AD = 8$ , then the area of rectangle ABCD is:
- A) 36 sq. units
  - B) 50 sq. units
  - C) 60 sq. units
  - D) Cannot be calculated
- Q20. A circle of maximum possible size is cut from a square sheet of board. Subsequently, a square of maximum possible size is cut from the resultant circle. What will be the area of the final square?
- A) 75% of the size of the original square
  - B) 50% of the size of the original square
  - C) 75% of the size of the circle
  - D) 25% of the size of the original square
- Q21. Point of intersection of the Altitudes of a triangle is:
- A) Incentre
  - B) Circumcentre
  - C) Centroid
  - D) Orthocentre
- Q22. The cartesian system is named in honour of the Mathematician \_\_\_\_\_.
- A) Leibnitz
  - B) Euclid
  - C) Laplace
  - D) Rene Descartes

- Q23. The image of the point  $(-2, 2)$  in the mirror  $x = 4$  is:
- A)  $(2, -2)$
  - B)  $(-2, 10)$
  - C)  $(10, 2)$
  - D)  $(-2, 6)$
- Q24. A swimming pool 9 m wide and 12 m long is 1m deep on the shallow side and 4m deep on the deeper side. Its volume is:
- A)  $309 \text{ m}^3$
  - B)  $270 \text{ m}^3$
  - C)  $360 \text{ m}^3$
  - D)  $607 \text{ m}^3$
- Q25. A rectangular box measures internally 1.6m long, 1m broad and 60cm deep. The number of cubical blocks each of edge 20cm that can be packed inside the box is:
- A) 32
  - B) 55
  - C) 60
  - D) 120
- Q26. A regular hexagonal pyramid is 20m high. Side of the base is 5m. Find the volume of the pyramid.
- A)  $250\sqrt{3}\text{m}^3$
  - B)  $200\sqrt{3}\text{m}^3$
  - C)  $125\sqrt{3}\text{m}^3$
  - D)  $100\sqrt{3}\text{m}^3$
- Q27. A cylinder is filled to  $\frac{4}{5}$ th of its volume. It is, then tilted so that the level of water coincides with one edge of its bottom and top edge of the opposite side. In the process 30 cc of the water is spilled. What is the volume of the cylinder?
- A) 50 cc
  - B) 100 cc
  - C) 150 cc
  - D) 300 cc
- Q28. Find mean of 1,3,5,7,.....71.
- A) 24
  - B) 28
  - C) 32
  - D) 36

Q29. Probability of a certain event is:

- A) 0
- B) 1/2
- C) 1
- D) Infinity

Q30. The median and mode of a frequency distribution are 525 and 500. Then, mean of same frequency distribution is:

- A) 75
- B) 107.5
- C) 527.5
- D) 537.5

### **SOCIAL STUDIES (10 Marks)**

Q31. When did the women in France win the right to vote?

- A) 1944
- B) 1946
- C) 1947
- D) 1945

Q32. Which one was not a feature of liberals?

- A) They wanted a nation which tolerated all religions.
- B) They opposed the uncontrolled power of dynastic rulers.
- C) They believed in universal adult franchise.
- D) They argued for representative, elected parliamentary government.

Q33. Which is the right bank tributary of the river Ganga?

- A) Gandak
- B) Kosi
- C) Ghaghara
- D) Yamuna

Q34. Match the following:

<b>Bio-reserves</b>	<b>State</b>
a) Nokrek	1) Assam
b) Manas	2) West Bengal
c) Panchmarhi	3) Meghalaya
d) Sunderbans	4) Madhya Pradesh

- A) a – 3, b – 1, c – 4, d – 2
- B) a – 4, b – 3, c – 2, d – 1
- C) a – 1, b – 2, c – 3, d – 4
- D) a – 3, b – 1, c – 2, d – 4

- Q35. In which of the following places are the houses built on stilt?
- A) Assam
  - B) Rajasthan
  - C) Goa
  - D) Kerala
- Q36. Which one is not a part of primary sector activities?
- A) Forestry
  - B) Mining
  - C) Tourism
  - D) Agriculture
- Q37. Which NGO facilitates setting up of grain banks in different regions of India?
- A) Mother Dairy
  - B) Anand Milk Union Limited
  - C) Academy and Development Science, Maharashtra
  - D) Academy and Development Science, Kerala
- Q38. Who is the ex-officio of Rajya Sabha?
- A) Vice-President
  - B) President
  - C) Prime Minister
  - D) Home Minister
- Q39. When was 'Right to Property' excluded from the list of Fundamental Rights?
- A) 1975
  - B) 1977
  - C) 1978
  - D) 1979
- Q40. From which country's constitution, the concept of 'Judicial Review' is derived?
- A) U.S.A
  - B) Canada
  - C) Australia
  - D) Britain

## APTITUDE (15 Marks)

**Direction (Q41.)** Study the following information to answer the questions given below:

An exhibition is open for public since 9 a.m. till 3 p.m. and again since 4 p.m. till 10 p.m. In a day there are 12 batches of 1 hour each the entry ticket bears a pass code made up of seven words, which changes every hour following a particular rule. The pass code 4 p.m. to 10 p.m. are same as those for respective hours during 9 a.m. to 3 p.m., i.e., the pass code for 4 p.m. to 5 p.m. is same as that of 9 a.m. to 10 a.m. and so on. Following is an illustration of the code and steps of rearrangement for subsequent clock hours.

First batch : 9 a.m. to 10 a.m. (4 p.m. to 5 p.m.)

Pass code : dig more and you will find water

Second batch : 10 a.m. to 11 a.m. (5 p.m. to 6 p.m.)

Pass code : and dig find you water will more

Third batch : 11 a.m. to 12 noon (6 p.m. to 7 p.m.)

Pass code : find and will you more water dig and so on.

- Q41. If the pass code for the second batch is 'do not play the near water dirty', what will be the pass code for 2 p.m. to 3 p.m. batch?
- A) Near dirty not the play do water
  - B) Dirty near play the not do water
  - C) Dirty near not the play do water
  - D) Near dirty not the play water do
- Q42. The maximum number of point of intersection of 4 circles and 4 straight lines:
- A) 25
  - B) 50
  - C) 56
  - D) 72
- Q43. A newspaper has 6 sheets consisting of 24 pages in total. If page number 17 of that newspaper is missing, then find the set of missing pages in that newspaper, from the alternatives given below :
- A) 6, 7, 16, 17
  - B) 7, 8, 17, 18
  - C) 8, 9, 17, 18
  - D) 9, 10, 16, 17
- Q44. A cube is coloured red on three adjacent faces. It is then cut (once horizontally and once vertically) into four cuboids of equal size. Each of these cuboids is coloured green on all the uncoloured faces and is then cut (once horizontally and once vertically) into four cuboids of equal size.
- How many cuboids have three red faces each?
- A) 4
  - B) 2
  - C) 1
  - D) 8



Q45. If CLOUD = 11, BURST = 16 and ACE = 3, then MONSOON = ?

- A) 13
- B) 15
- C) 17
- D) 19

Q46. Which one will replace the question mark?

5	3	2	151022
9	2	4	183652
8	6	3	482466
5	4	5	202541
7	2	5	?

- A) 143546
- B) 143547
- C) 143548
- D) 143549

Q47. Ishan wishes Irfan 'Good Morning' When the hour hand of a (measured clockwise) clock is positioned between 9 and 10. The angle between the two hands is  $145^\circ$ . The time shown by the clock is:

- A) 9.08 a.m.
- B) 9.12 a.m.
- C) 9.10 a.m.
- D) 9.15 a.m.

Q48. Find the missing value '?' in the following series: 13, 34, 74, ?, 290

- A) 170
- B) 168
- C) 172
- D) 174

**Directions (Q49)**

1. There are five types of cards viz. A, B, C, D and E. There are three cards of each type. These are to be inserted in envelopes of three colours-Red, Yellow and Brown. There are five envelopes of each colour.
2. B, D and E types cards are inserted in red envelopes. A, B and C types card are to be inserted in yellow envelopes and C, D and E types cards are to be inserted in brown envelopes.
3. Two cards each of B and D type are inserted in red envelopes.

- Q49. Which of the following combinations of types of cards and the numbers of cards and colour of envelopes is definitely correct?
- A) A-2, B-2, C-1 Yellow
  - B) C-2, E-2, D-1 Brown
  - C) E-2, D-2, C-1 Brown
  - D) D-2, B-2, A-1 Red
- Q50. The last day of century cannot be
- A) Monday
  - B) Wednesday
  - C) Friday
  - D) Tuesday

### **PHYSICS (07 Marks)**

- Q51. Two springs A & B ( $K_A=2K_B$ ) are stretched by applying forces of equal magnitudes at the four ends. If the energy stored in A is E, then in B it is:
- A) 2E
  - B) 4E
  - C) E/2
  - D) E
- Q52. If three identical masses M are placed at the corners of equilateral triangle of side L, then calculate escape velocity given to a mass m placed at centroid of an equilateral triangle :
- A)  $\sqrt{\frac{6\sqrt{2}GM}{L}}$
  - B)  $\sqrt{\frac{3GM}{2L}}$
  - C)  $\sqrt{\frac{6\sqrt{3}GM}{L}}$
  - D)  $\sqrt{\frac{3GM}{L}}$
- Q53. A body is moving from rest under constant acceleration and let  $S_1$  be the displacement in the first  $(p - 1)sec$  and  $S_2$  be the displacement in the first  $psec$ . The displacement in  $(p^2 - p + 1)^{th} sec$  will be:
- A)  $S_1 + S_2$
  - B)  $S_1S_2$
  - C)  $S_1 - S_2$
  - D)  $S_1/S_2$

- Q54. The upper half of an inclined plane with inclination  $\phi$  is perfectly smooth while the lower half is rough. A body starting from rest at the top will again come to rest at the bottom, if the coefficient of friction for the lower half is given by:
- A)  $\tan \phi$
  - B)  $2 \tan \phi$
  - C)  $2 \sin \phi$
  - D)  $2 \cos \phi$
- Q55. A hollow metallic sphere with internal and external radii  $r_1$  and  $r_2$  respectively floats on the surface of liquid. The density of liquid is  $\rho_1$  and density of material of sphere is  $\rho_2$ . What fraction of the sphere is inside the liquid?
- A)  $\left(1 + \frac{r_1^3}{r_2^3}\right) \frac{\rho_2}{\rho_1}$
  - B)  $\left(1 - \frac{r_1^3}{r_2^3}\right) \frac{\rho_1}{\rho_2}$
  - C)  $\left(1 - \frac{r_1^3}{r_2^3}\right) \frac{\rho_2}{\rho_1}$
  - D)  $\left(1 + \frac{r_2^3}{r_1^3}\right) \frac{\rho_1}{\rho_2}$
- Q56. The characteristic of sound which enables us to distinguish one sound from another having the same pitch and loudness is:
- A) Timber
  - B) Amplitude
  - C) Shrillness
  - D) Intensity
- Q57. A string of length  $L$  and mass  $M$  is lying on a horizontal table. A force  $F$  is applied at one of its ends. Tension in the string at a distance  $x$  from the end at which force is applied is:
- A) zero
  - B)  $F$
  - C)  $F(L - x)/L$
  - D)  $F(L - x)/M$

### **CHEMISTRY (07 Marks)**

- Q58. The volume of matter in 1 kg of cotton is \_\_\_\_\_ that present in 1 kg of sugar.
- A) smaller than
  - B) greater than
  - C) equal to
  - D) cannot say

- Q59. If 5.85 g of NaCl are dissolved in 90 g of water, the mole fraction of solute is:
- A) 0.0196
  - B) 0.01
  - C) 0.1
  - D) 0.2
- Q60. Cod liver oil is:
- A) fat dispersed in water
  - B) water dispersed in fat
  - C) water dispersed in oil
  - D) fat dispersed in fat
- Q61. Paper chromatography has following mobile and stationary phases respectively.
- A) liquid, solid
  - B) solid, solid
  - C) gas, liquid
  - D) liquid, liquid
- Q62. The maximum number of molecules is present in:
- A) 5 L of  $N_2$  gas at STP
  - B) 0.5 g of  $H_2$  gas
  - C) 10 g of  $CO_2$  gas
  - D) 15 L of  $H_2$  gas at STP
- Q63. 5.6 g of a metal forms 12.7 g of metal chloride. Hence, equivalent weight of the metal is:  
(Nearest integer)
- A) 127
  - B) 254
  - C) 56
  - D) 28
- Q64.  ${}_4Be^7$  captures a  $K$  electron into its nucleus. What is the mass number and atomic number of the nuclide formed?
- A) 4, 7
  - B) 4, 8
  - C) 3, 8
  - D) 3, 7

## BIOLOGY (06 Marks)

- Q65. Omnis cellula-e-cellula term was coined by:
- A) Virchow
  - B) Schwann
  - C) Scheiden
  - D) Haeckel
- Q66. Which tissue is found in fibrous covering of coconut?
- A) Parenchyma
  - B) Collenchyma
  - C) Sclerenchyma
  - D) Meristematic tissue
- Q67. Which fish feeds in the middle zone of the pond?
- A) Catla
  - B) Mrigal
  - C) Common Carp
  - D) Rohu
- Q68. The alga which can be employed as food for human beings is:
- A) Chlorella
  - B) Spirogyra
  - C) Polysiphonia
  - D) Ulothrix
- Q69. Which of the following follows a general principle of fooling the immune system by putting particular infection into the body?
- A) AIDS
  - b) Vaccination
  - C) Antibiotic
  - D) Antiseptic
- Q70. Which of the following gases is related with acid rain?
- A)  $NO_2$  &  $CO_2$
  - B)  $CH_4$  &  $SO_2$
  - C)  $CO_2$  &  $SO_2$
  - D)  $SO_2$  &  $NO_2$