

National Education Society's High School
Bhandup (w) Mumbai – 400 078
IV Prelim Examination

Std: X /Div:

Sub-Mathematics -I

Marks:40

Roll No:

No of Pgs-07

Time:2Hrs

Date: 15.02.2019

Q 1) A) Solve any Four of the following : (4)

i) Classify the following sets as finite or infinite

a) $B = \{y \mid y \text{ is the factor of } 13\}$

b) $D = \{x \mid x = 2^n, n \in \mathbb{N}\}$

ii) Simplify = $\sqrt{50} - \sqrt{98} + \sqrt{162}$

iii) If $P(x) = (x^3 + 4x - 5)$ is divided by $(x - 1)$ then find the remainder and hence determine whether $(x - 1)$ is a factor of $P(x)$ or not?

iv) Find the fourth proportional to 5, $\sqrt{75}$, $\sqrt{48}$

v) Frame linear equations in two variables representing the following information. The sum of the ages of Monali and Sonali is 29 years. Monali is younger than Sonali by 3 years.

vi) Find the mode of 90, 55, 67, 55, 75, 40, 35, 55, 95, 75

B) Solve any TWO of the following : (4)

i) The mean of 5 observations is 50. One of the observations was removed from the data, hence the mean became 45. Find the observation which was removed.

ii) Salil's age is 23 years more than half of the Sangram's age. Five years ago, the sum of their ages was 55 years. Find their present ages.

iii) Divide $m^4 + 3m^2 - 8$ by $m + 2$ using synthetic division and express the result as-

Dividend = Divisor X Quotient + Remainder.

Q 2A) Choose the correct alternative from the option given and complete the sentences: (4)

i) If for any A.P. $D = 5$ then $t_{18} - t_{13} =$ _____

- a) 5 b) 20 c) 25 d) 30

ii) When registered dealer sells goods to another registered dealer under GST, then this trading is termed as _____

- a) BB b) B2B c) BC d) B2C

iii) There are 40 cards in a bag. Each bears a number from 1 to 40. One card is drawn at random. What is the probability that the card bears a number which is a multiple of 5?

- a) $\frac{1}{5}$ b) $\frac{3}{5}$ c) $\frac{4}{5}$ d) $\frac{1}{3}$

iv) Persons of AB – blood group are 60%. The classification of persons based on blood groups is to be shown by pie diagram. What should be the measure of angle for the persons of AB-blood group?

- a) 206° b) 130° c) 216° d) 116°

B) Solve any TWO of the following : (4)

i) One person pay ₹ 405 as bus fare for three adults from place A to place B and one adult from place A to place C. Another person pay ₹ 620 as bus fare for two adults from place A to place B and three adults from place A to place C. Find the bus fare for places A and B and between places A and C.

ii) The sum 'S' of the first n natural numbers is given by the relation $S = \frac{n(n+1)}{2}$. Find n, if the sum is 55.

iii) If the 10th term and the 18th term of an A.P. are 25 and 41 respectively then find the following.

a) the 1st term and the common difference . b) the 38th term.

Q3A) Complete any TWO of the following activities: (4)

i) ₹ 1000 is invested at 10 percent simple interest. Check at the end of every year if the total interest amount is in A.P. If this is an A.P then find interest amount after 20 years. For this complete the following activity.

$$\text{Simple Interest} = \frac{P \times R \times N}{100}$$

$$\text{Simple interest after 1 year} = \frac{1000 \times 10 \times 1}{100} = \underline{\hspace{2cm}}$$

$$\text{Simple interest after 2 year} = \frac{1000 \times 10 \times 2}{100} = \underline{\hspace{2cm}}$$

According to this simple interest for 4,5,6 years will be _____, _____, _____ respectively.

From this $d = \underline{\hspace{2cm}}$, $a = \underline{\hspace{2cm}}$

$$\begin{aligned} \text{Simple interest after 20 years} &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

Ans : Amount of simple interest after 20 years = _____

ii) Suppose if the face value of share is ₹100 and market value is ₹150 . The rate of brokerage is 05% . What amount should one receive after selling 100 such share?

Accordingly complete the activity given .At the time of selling shares.

Selling Price per share = _____
= _____
= _____

If some one sells 100 such shares , he will get

_____ x _____ = _____

iii)Decide the sample space yourself and complete the activity .

a)Total number of students in Your class = $n(S)$ = _____

b)Number of students wearing spectacle = $n(A)$ = _____

c)Probability of students wearing spectacle = _____

d)Probability of students not wearing spectacles = $P(B)$ = _____

B)Solve any TWO of the following : (4)

i)Market value of share and dividend declared by the two companies is given below. Face value is same and it is ₹100 for both the shares. Investment in which company is more profitable?

a)Company A- ₹132, 12% b)Company B, ₹144 , 16%

ii)Two dice are thrown, find the probability of getting a) The sum of the numbers on their upper faces is divisible by 5. b)The number on the upper face of the first die is greater than the number on the upper face of the second die.

iii) Find the value of k for which the given simultaneous equation have definitely many solutions : $kx+2y = k-2$, $8x + Ky = k$.

Q 4) Solve any THREE of the following :

(9)

i) There are 3 men and 2 women. A 'Swachh Abhiyan' committee of two is to be formed

a) P is the event that the committee should contain at least one woman.

b) Q is the event that the committee should contain one man and one woman.

c) R is the event that there should not be a woman in the committee.

ii) If the cost of banana is increased by 1 per dozen, one can get 2

dozen less for 240. Find the original cost of one dozen banana.

iii) A mixer manufacturing company manufactured 600 mixers in 3rd year and in 7th year they manufactured 700 mixers. If every year

there is same growth in the production of mixers then find

a) Production in the first year b) Production in 10th year

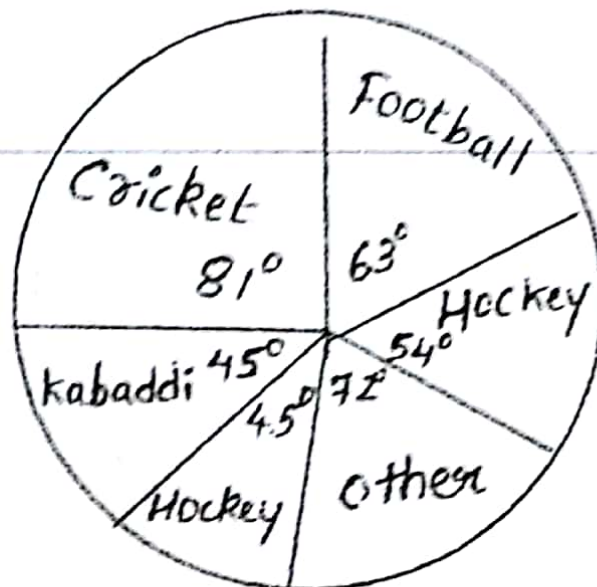
c) Total production in first seven years.

iv) A survey of students was made to know which game they

like. The data obtained in the survey is presented in the

adjacent pie diagram. If the total number of students

are 1000.



a) How many students like cricket?

b) How many students like football?

c) How many students prefer other games?

Q 5 Solve any ONE of the following: (4)

i) A boat takes 6 hours to travel 16 km upstream and 24 km. downstream and it takes 13 hours to travel 36km upstream and 48 km downstream find the speed of the boat in still water and the speed of the stream.

ii) Below is given distribution of daily sales (in) of 100 salesman.

Daily Sales (in)	0-600	600-1200	1200-1800	1800-2400	2400-3000	3000-6000
No of salesmen	9	11	25	20	30	5

Find mean daily sales of a salesmen using 'Step deviation method'.

Q6 Solve any ONE of the following : (3)

i) Find two consecutive odd positive integers, sum of whose squares is 290.

ii) A company provided Z-security services for the taxable value of 64,500 . Rate of GST is 18% . Company had paid GST of 1550 for laundry services and uniforms etc. What is the amount of ITC? Find the amount of CGST and SGST payable by the company.
