

EXAMINATION FOR THE RECRUITMENT OF ASO (MAIN) 2023
THE HIGH COURT OF ODISHA

SUBJECT : MATHEMATICS

Full Mark : 100

Time : 2 hours

The questions are of equal value.

Answer All The Questions.

- ✓ 1. After covering a distance of 30 km with a uniform speed, the speed of the train is reduced to $\frac{4}{5}$ its original speed due to some defect, so the train reaches its destination late by 45 minutes. Had it happened after covering 18 km more, the train would have reached 9 minutes earlier, find the speed of the train and the distance of the journey.

OR

A train covered a certain distance at a uniform speed. If the train would have been 6 Km/h faster, it would have taken 4 hours less than the scheduled time. And, if the train were slower by 6 km/hr, it would have taken 6 hours more than the scheduled time. Find the length of the journey.

2. At present Asha's age (in years) is 2 more than the square of her daughter Nisha's age when Nisha grows to her mother's present age, Asha's age would be one year less than 10 times the present age of Nisha. Find the present age of both Asha and Nisha ?
- ✓ 3. By selling 400 articles , a man lost the S.P. of 30 articles. Had he purchased them for Rs. 537.50, what would have been the S.P. of 20 articles ?
- ✓ 4. O Girl ! Out of a group of swans, $\frac{7}{2}$ times the square root of the number are playing on the shore of a tank. The two remaining ones are , with amorous fight, in the water. What is the total number of swans ?
- ✓ 5. Two trains leave a railway station at the same time. The first train travels due west and the second train due north. The first travels 5 kms/hr faster than the second train. If after 2 hours, they are 50 km apart, find the average speed of each train ?

OR

A man walks a certain distance with certain speed . If he walk $\frac{1}{2}$ km an hour's faster , he takes 1 hour less. But, if he walks 1 km an hour slower , he take 3 more hours. Find the distance covered by the man and his original rate of walking.

6. A peacock is sitting on the top of a pillar, which is 9 m high. From a point 27 m away from the bottom of the pillar, a snake is coming to its hole at the base of the pillar, seeing the snake the peacock pounces on it. If their speeds are equal, at what distance from the whole is the snake caught ?
7. Two cars start together in the same direction from the same place. The first goes with uniform speed of 10km/h . The second goes at a speed of 8 km/h in the first hour and increase the speed by $\frac{1}{2}$ km in each succeeding hour. After how many hours will the second car overtake the first car if both cars go nonstop ?

OR

150 workers were engaged to finish a piece of work in a certain number of days. Four workers dropped the second day, four more workers dropped the third day and so on. It takes 8 more days to finish the work now. Find the number of days in which the work was completed ?

8. The sum of two numbers is 1000 and the difference between their squares is 256,000. Find the number.

OR

A two digit number is 4 times the sum of its digits and twice the product of the digits. Find the number.

9. A conical vessel of radius 6 cm and height 8 cm is completely filled with water. A sphere is lowered into the water and its size is such that when it touches the sides, it is just immersed. What fraction of water overflows ?

OR

Inscribed in a right circular cone are two spheres with radii of 6 cm and 1 cm. The larger sphere touches both the smaller sphere and the cone's base. Find the cone's height.

10. The median of the following data is 525. Find the values of x and y , if the total frequency is 100 :

Class interval	Frequency
0 – 100	2
100 – 200	5
200 – 300	x
300 – 400	12
400 – 500	17
500 – 600	20
600 – 700	y
700 – 800	9
800 – 900	7
900 – 1000	4