B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

MID-APRIL TEST 2025-26
APPLIED MATHEMATICS

Class: XII | **Time: 1hr**
Date: 17.04.25 | **MARKING KEY** | **Max Marks: 25**
Admission no: | **Roll no:**

General Instructions:

1. This Question Paper has 4 Sections A, B, C and D.
2. Section A has 5 MCQs carrying 1 mark each
3. Section B has 2 questions carrying 02 marks each.
4. Section C has 2 questions carrying 03 marks each.
5. Section D has 2 questions carrying 05 marks each.
6. All Questions are compulsory.

SECTION A

1.If 100 ≡ X (mod7), then the least possible value of X is 1

(a) 2
(b) 3
(c) 6
(d) none of above

2.In what ratio shall I add water to the liquid detergent costing Rs. 480 per litre to get resulting mixture worth Rs. 300 per litre 1

(a) 5:3
(b) 3:8
(c) 3:5
(d) none of the above

3. In 1000 metres race, A reaches the final point in 56 seconds and B reaches in 70 seconds .By how much distance does A beat B? 1

(a) 200
(b) 120
(c) 150
(d) none of the above

4.If x is a negative integer ,then the solution set of – 12x >30 is 1

(a) { -2,-1}
(b) { …..,-5,-4,-3}
(c) {…-5,-4,-3,-2}
(d) none of the above

5.The solution set of 6≤- 3(2x-4) < 12 , x belongs to real numbers is 1

(a) [-1,3]
(b) (-1,3)
(c) (-1,3]
(d) none of the above

SECTION B

6. *The ratio of speed of a motorboat and that of the current of water is 36: 5. The boat goes certain distance along with the current in 5 hours 10 minutes how much time will it take to come back?* 2

A:- 41x Multiplied by 31/6 = 31x multiplied by t *1m*

t = 41/6 ***1m***

7. In the given question, one statement has been followed by two conclusions. Find which of the given conclusion is true or false. 2

Statement: C = B ≥A≤D = E

Conclusion 1:C = X Conclusion 2: C<D

A:- No conclusion is true

8. Pipes A and B can fill a tank in six hours and eight hours respectively pipe C can empty it in 12 hours, if all the three pipes are open together find the time in which the tank can be filled. 3

A:- $\frac{1}{6}+\frac{1}{8}-\frac{1}{12}$ 2m

$\frac{24}{5}=4\frac{4}{5}$ hours 1m

9. Solve (a) 4x+3 ≤ 6x +7 3

(b) 3x-7 > 5x -1

A:- (a) [-2,□) 1.5m

(b) (-□,-3) 1.5m

10. (a) How many kg of sugars costing Rs. 45 per kg must be mixed with 30KG sugar costing Rs. 35 per kg so that there may be a gain of 12% by selling the mixture at Rs. 47.04 per kg? 5

(b) The average salary per worker of the entire staff of a polythene bag manufacturing unit including machine operator and labours is **7500**. The average salary per head of the machine operator is **25000** and that of labours is **6000**. Find the number of workers in the unit if there are 3 machine operators.

A:- (a)Selling prize as 42 rupees 1

Ratio as 3 ratio 7 1

70 kg 1

(b)Till formation of ratio 1

X= 38 1

11. A manufacturer has 1125 litres of 45% acid solution. He wants to dilute it by adding water or some low concentrated acid solution. 5

Based on the above information, answer the following questions:

(i) Find the minimum volume of water that should be added so that resulting mixture will contain less than 30% acid content.

(ii) Find the volume of water that should be added so the resulting mixture will contain more than 25% but less than 30% acid content.

(iii) How many litres of 35% had its acid solution should be added so that the resulting mixture will contain at least 42 .5% acid content?

A:- (i) X > 562.5 2

(ii) 562.5<x<900 2

(iii) X< 375 1

**********BEST OF LUCK**********