BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARYCO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

Pre-Mid Term 2024-25

APPLIED MATHEMATICS (241)

CLASS: XI COMM   **MAX.MARKS:25**
TIME:1 HR   **DATE 01/08/24**

<u>General Instructions:</u>

1. This Question Paper has 3 Sections A, B and C.
2. Section A has 10 MCQs carrying 1 mark each
3. Section B has 3 questions carrying 02 marks each.
4. Section C has 3 questions carrying 03 marks each.
5. All Questions are compulsory.

<div align="center"><u>SECTION A</u></div>

1 The value of $(512)^{-2/3}$ is   1
   (a) 1/16
   (b) 1/64
   (c) 1/32
   (d) 1/8

2 The value of $(32/243)^{-4/5}$ is   1
   (a) 9/4
   (b) 4/9
   (c) 16/81
   (d) 81/16

3 The value of $\log_5(1/125)$ is   1
   (a) 9/4
   (b) 4/9
   (c) 16/81
   (d) 81/16

4 Characteristic of log436.6 is   1
   (a) 1
   (b) 2
   (c) 3
   (d) 4

5 If a man covers a certain distance at the speed of 15km/hr and an equal distance at the speed of   1
   20 km/hr, then the average speed of man is
   (a) 15.17 km/hr
   (b) 25 km/hr
   (c) 27.5km/hr
   (d) 17.14km/hr

6 A clock is started at noon. The angle traced by hour hand at time 10 minutes past 5 is   1
   (a) 75^0
   (b) 135^0
   (c) 155^0
   (d) 165^0

7 4 men and 6 women finish a job in 8 days, while 3 men and 7 women can finish it in 10 days. In   1
   how many days can 10 women finish it?

(a) 35 days
(b) 25 days
(c) 30 days
(d) 40 days

8   The length of each side of an equilateral triangle having an area of 9√3 cm^2 is   1
(a) 4 cm
(b) 6 cm
(c) 8 cm
(d) 36 cm

9   (A) Assertion: $\log_3 64 = 8$ 1
(R) Reason: If $a^x = N$, then $\log_a N = X$
(a) Both assertion (A) and reason (R) are true and reason(R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason(R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

10 (A) Assertion: The average of the first 50 natural numbers is 25.5.   1
(R) Reason: Sum of first n natural numbers is n(n+1)/2
(a) Both assertion (A) and reason (R) are true and reason(R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason(R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

SECTION B

11 Evaluate: $\left(3\dfrac{81}{216}\right)^{\frac{-2}{3}}$ 2m

12 'A' completes a piece of work in 3 days, 'B' completes it in 5 days and 'C' takes 10 days to complete the same work. How long will they take to complete the work, if they work together?   2m

13 Given log2=0.3010, log 3 = 0.4771 and log 5 = 0.6990; find: 2m
(a) log 8
(b) log 360

SECTION C

14 A man covers a certain distance at some speed. Had he moved 3km/hr faster, he would have taken 40 minutes less. If he had moved 2km/hr slower, he would have taken 40 minutes more. Find the distance covered by man?   3m

15 Evaluate the following using log tables: 3m

$$\sqrt[7]{\dfrac{1}{0.8176 \, X \, 36.21}}$$

16 Simplify: $\dfrac{2^{3x+4} + 8^{x+1}}{8^{x+1} - 2^{3x+2}}$ 3m

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