INDIAN SCHOOL AL WADI AL KABIR

Department of Mathematics, 2020-2021

Class XI APPLIED MATHEMATICS (241) 01.11.2020

WORKSHEET_ Part 2_ Numerical Applications

Section A (Short answer type – 2 marks)

Q.1.	$Solve\ for\ x\colon\ log_x 2 + log_4 x + log_{16} x = \frac{21}{4}$.
Q.2.	Simplify: $\frac{3^{n+2}-4.3^{n+1}}{7.3^n-2.3^{n+1}}$.
Q.3.	$Simplify\colon log_2(log_2(log_2 16))$
Q.4.	$Prove\colon \frac{a+b+c}{a^{-1}b^{-1}+b^{-1}c^{-1}+c^{-1}a^{-1}} = abc$
Q.5.	In an examination, the average marks scored by a class of 40 students was calculated as 70. Later it was detected that the marks of one student were wrongly copied as 54 instead of 94. Find the correct average.
Q.6.	What was the day on 28th November 1972?
Q.7.	At what time between 5:00 and 6:00 will the hands of a clock be at right angles?
Q.8.	Two trains 110m and 90m long are running in opposite direction at 40km/h and 50km/h respectively. In what time they will cross each other completely from the moment they meet?
Q.9.	Find the length of the longest pole that can be put in a room of dimensions (10m x 10m x 5m).
Q10.	Express as a single logarithm: $2 + \frac{1}{4} log_{10} 81 - 2\ log_{10} 5$.

Section B (Long answer type – 4marks)	
Q11.	A can do a work in 10 days and B can do it in 15 days. They worked together for 4 days and then A left the work. In how many days can B finish the remaining work? If the remuneration for the work is ₹ 10, 000, how much amount would each get?
Q12.	Two trains 130m and 110 m lengths move in the same direction at the same time. The faster train completely overtakes the slower train in 15 seconds. If the slower train moves at half of its speed, the overtaking would take 10 seconds. Find the speed of two trains in m/s.
Q13.	Squares of each side of 3cm are cut off from the corners of a sheet of tin measuring 24cm x 18cm. The remaining portion of the tin is made into an open box by folding up the flaps. Find the capacity of the box.
Q14.	Evaluate using log tables: $\sqrt{\frac{31.67\times42.36}{9.25}}$
Q15.	Evaluate using log tables: $\frac{(48.86)^{\frac{3}{2}}\times(51.05)^{\frac{2}{3}}}{(83.28)^{\frac{1}{2}}}$

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ANSWERS									
1.	8	**2.**	-3	**3.**	1	**4.**	abc	**5.**	71
6.	Tuesday	**7.**	5:10:55 & 5:43:38	**8.**	8 seconds	**9.**	15m	**10.**	$log_{10}12$
11.	4days, ₹4000, ₹6000	**12.**	32m/s & 16m/s	**13.**	648c.c.	**14.**	2375	**15.**	514.9

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