

NEW STANDARD ACADEMY

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CLASS 11 (Academy) 21-04-2025

PHYSICS

1. Find $I = \int (3x^2 + e^x + \sin x + 2) dx$?
2. Find $I = \int (6\sqrt[5]{x} + 5\sqrt[3]{x^2}) dx$
3. Find $I = \int (4x^3 + 3x^2 + 2x + 1) dx$?
4. Find $I = \int (e^x + \cos x) dx$?
5. Find $I = \int \frac{1}{x^3} dx$?

CHEMISTRY

1. Two oxides of carbon contain 57.2% and 72.73% oxygen. Show that these data confirm the law of multiple proportions.
2. 1 gram of two oxides of a metal are reduced by H_2 . Metal formed weigh 0.888g and 0.799g. Show that these data illustrate the law of multiple proportions.
3. Show that the following data confirm the law of multiple proportions:
(a) 1.77 g of metal oxide gives 1.61 g metal on heating.
(b) 3.45g of metal oxide gives 3.21 g metal on heating.
(c) 1.195g of metal oxide gives 1.04g metal on heating.
4. One gram each of two oxides on reduction with H_2 gas produce 0.1254 g and 0.2263 g water. Prove that these values confirm the law of multiple proportions.
5. Sulphur forms two oxides having 50% and 60% oxygen by mass respectively. Prove that these results illustrate the law of multiple proportion.

BIOLOGY

1. Which cell organelle takes part in acrosome synthesis?
2. Which cell organelle is nicknamed "Suicide bag"?
3. Which type of ribosome is found in prokaryotic cells?
4. Who discovered mitochondria?
5. Who gave the first electron microscopic structure of cells?
6. What is the most important function of Golgi complex?
7. What is polyribosomes?

8. What is the significance of vacuole in a plant cell?
9. What does 's' refer in a 70S and 80S ribosome?
10. Mention a single membrane bound organelle which is rich in hydrolytic enzymes.

MATH

1. Which of the following numbers are positive /negative?
(i) $\log_2 7$ (ii) $\log_{0.2} 3$ (iii) $\log_{1/3} (1/5)$
2. What is logarithm of $32\sqrt[5]{4}$ to the base $2\sqrt{2}$
3. Which is greater $x = \log_3 5$ or $y = \log_{17} 25$?
4. If $y = 2^{\frac{1}{\log x^4}}$, then find x in terms of y.
5. Find the value of $81^{(1/\log_5 3)} + 27^{\log_9 36} + 3^{4/\log_7 9}$
6. Prove that number $\log_2 7$ is an irrational number.
7. Find the value of $\log_3 4 \times \log_4 5 \times \log_5 6 \times \log_6 7 \times \log_7 8 \times \log_8 9$.
8. If $a^x = b, b^y = c$ and $c^z = a$ then find the value xyz.
9. Solve $\log(-x) = 2 \log(x+1)$
10. Solve $\log_2(3x-2) = \log_{1/2} x$