

NEW STANDARD ACADEMY

Exam

NEET - JEE

Marks: 60

Date : 10-07-23

CLASS : 9TH

Time: 90:MIN

PHYSICS

1. A train is travelling at a speed of 90 kmh^{-1} . Brakes are applied so as to produce a uniform acceleration of -0.5 ms^{-2} . Find how far the train will go before it is brought to rest.
2. A girl of mass 50 kg jumps out of a moving boat of mass 300 kg on to the bank with a horizontal velocity of 3 ms^{-1} . With what velocity will the boat begin to move backwards?
3. Define inertia. Name the physical quantity that measures it.
4. A body of mass 20 kg is moving with a speed of 5 ms^{-1} . Calculate the distance travelled by the body before coming to rest when a constant retarding force of 40 N is applied on it.
5. A force of 1 N acts on a body of mass 1 g. Calculate the acceleration produced in the body?
6. Differentiate between distance and displacement.
7. A man walks at a speed of 6 km/hr for 1 km and 8 km/hr for the next 1 km. What is his average speed for the walk of 2 km?

CHEMISTRY

8. For any substance, Why does the temperature remain constant during the change of state ?
9. What is atmospheric pressure? What is determined by atmospheric pressure?
10. Why solid carbon dioxide is stored under high pressure?
11. Naphthalene balls disappear with time without leaving any solid why?

12. A sponge can be compressed easily. So why do we call sponge a solid?
13. Why does a desert cooler cool better on a hot dry day?

BIOLOGY

14. What is the specific function of the striated muscle?
15. Differentiate between striated, unstriated and cardiac muscles on the basis of their structure and site/location in the body.
16. Determine the location of the following tissues:
 - a. Unstriated muscle fibers
 - b. Cuboidal epithelium
 - c. Adipose tissue
 - d. Striated muscle fibers
17. Why are skeletal muscles known as striated muscles?
18. State the feature of cardiac muscles which makes it unique.
19. A. The tissue is under control of will. What is this type of tissue called? Name it.
B. What are ligaments ? What do you expect to feel if they are over stretched?
20. Name the following :
 - a. Tissue that forms the inner lining of our mouth.
 - b. Tissue that stores fat in our body
 - c. Connective tissue with a fluid matrix.
 - d. Tissue present in the brain.

MATHS

21. If $a = 2 + \sqrt{3} + \sqrt{5}$ and $b = 3 + \sqrt{3} - \sqrt{5}$, prove that $a^2 + b^2 - 4a - 6b - 3 = 0$.
22. Find six rational numbers between 3 and 4.
23. Give an example of two irrational numbers, the product of which is (i) a rational number
(ii) an irrational number
24. If $x = \frac{\sqrt{3}+1}{2}$ find the value of $4x^3 + 2x^2 - 8x + 7$.
25. If $x = \frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}}$ and $y = \frac{\sqrt{5}-\sqrt{2}}{\sqrt{5}+\sqrt{2}}$ find the value of $3x^2 + 4xy - 3y^2$.
26. Find the value of a & b if $(-1, 2)$ is solution of $ax + y + 1 = 0$ and $2x + by + 8 = 0$.
27. Draw the graph of
- $2y - x = 9$
 - $2x - 3y = 15$
28. If the length of a rectangle is reduced by 5 units and its breadth is increased by 2 units, then the area of the rectangle is reduced by 80 sq units. However, if we increase its length by 10 units and decrease the breadth by 5 units, its area is increased by 50 sq units. Make linear equations to find the length and breadth of the rectangle.
29. A fraction becomes $\frac{4}{5}$ if 1 is added to each of the numerator and denominator. However, if we subtract 5 from each, the fraction becomes $\frac{1}{2}$. Find the fraction
30. For what value of k will the following system of equations have a unique solution.
- $2x + ky = 1$ and $3x - 5y = 7$
 - $x - 2y = 3$ and $3x + ky = 1$
 - $2x + 5y = 7$ and $3x - ky = 5$