NEW STANDARD ACADEMY

Marks: 80

Date : 13-05-24 **CLASS : 09TH** **Time: 3 HRS**

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 car travels a certain distance with a speed of 50 kmh^{-1} and returns with a speed of 40 kmh^{-1}. Calculate the average speed for the entire journey?
3. Draw a diagram to show the motion of a body whose speed remains constant but velocity continuously changes.
4. An electric engine has a velocity of 120kmh^{-1}. How much distance will it travel in 30 s before coming rest.
5. A person is running along a circular path in a park.

a) At what point he changes his direction while running?

b) If he covered half of the circular path, what will be his displacement? Draw a diagram showing it.

6. An object is moving with uniform speed in a circle of radius 7m. Calculate and displacement when it completes half the circle. What type of motion does the object possess?
7. Differentiate between distance and displacement.
8. Give an example of a motion in which average velocity is zero , but the average speed is not zero.
9. Draw the v - t graph for constant motion.
10. A car starts from rest and achieve final velocity 10 m/s in 10 sec then its acceleration will be -

CHEMISTRY

11. 5mL of Dettol is added to a beaker containing 500mL of water and stirred. State four observations that you make.
12. It is hot summer day, Priyanshi and Ali are wearing cotton and nylon clothes respectively. Whom do you think would be more comfortable and why?
13. Why does the temperature remain constant during the boiling of water even though heat is supplied continuously?
14. What do you understand by the term'latent heat'? What are the the two types of latent heat?
15. Why is solid carbon dioxide known as dry ice?
16. Explain why, steam at 100℃ is better for heating purposes than boiling water at 100℃.
17. Which contains more heat,1 kg of ice at 0℃ or $1kg\ of$ water at 0℃ ? Give reason for your answer.
18. Would you cool a bucket of water more quickly by placing it on ice or by placing ice in it? Give reasons for your answer
19. Define 'boiling point' of a substance ? what is the boiling point of water?
20. What is the physical state of water:

    i) at 0℃ ii) at 25℃

BIOLOGY

21. Differentiate between fertilizer and manure.
22. What is Insect Pests?
23. Expand the term.
    i) 2,4,-D
    ii) 2,4,5-T
    iii) MCPA.
24. Why should preventive measures and biological control methods be preferred for protecting crops?
25. What biotic factors may be responsible for loss of grains during storage?
26. Write disadvantage of manure.
27. What is use of Bacillus thuringiensis bacteria .
28. Explain the Cultural method of weed control.
29. What are fumigants.

30. Explain the chemical method of weed control.

MATHS

31. If p and q are rational numbers and $\frac{5+\sqrt{11}}{3-2\sqrt{11}} = p + q\sqrt{11}$, then find the values of p and q respectively:
32. The value of $0.\overline{23} + 0.\overline{22}$ is
33. The degree of the polynomial $3x^3 + 12(\sqrt{3}x + \sqrt{12})^2 + 12x + 4$ is:
34. Find the remainder when $2x^3-9x^2+x+12$ is divided by 2+3x.
35. Find the value of k, if x-1 is a factor of p(x) in each of the following cases

a) $P(x)= x^3+x+k$ b) $P(x)=kx^2-\sqrt{2x}+1$

36. Factorise: (i) $12x^2-7x+1$ (ii) $3x^2-x-4$
37. It is given that when polynomials $p(x)= x^3+ax^2+3x+2$ and $q(x) = 2x^3+3x^2-4x-7$ are divided by x-1, the remainders obtained in each case are equal:

a) What is the value of 'a' for polynomial p(x)?
b) What should be subtracted from polynomial p(x) so as make remainder zero?
c) If polynomial p(x) + q(x) is divided by x-1, the remainder obtained is:

38. Factorise :-
    x(12x+7) -10
39. For what value of *m* is $x^3 -2mx^2 +16$ is divisible by x+2 ?
40. Find the zeroes of the following polynomials:
    i) ax + b , a ≠ 0
    ii) (x +1)(2x+3)