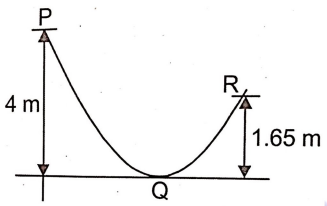
NEW STANDARD ACADEMY

Marks: 80

25-11-2024 **CLASS : 9 TH** **Time: 3 HRS**

PHYSICS

1. A mass of 20 kg moving with a speed of 10 m/s collides with another stationary mass of 5 kg. As a result of the collision the two masses stick together. The kinetic energy of the composite mass will be:
2. A ball is projected vertically down with an initial velocity from a height of 20 m on a horizontal floor During the impact it loses 50% of its energy and rebounds to the same height, the initial velocity of its projection is
3. A ball falling from a height of 5 m rebounds to 1.8 m height. ratio of velocities of after and before rebound is:
4. Kinetic energies of two bodies of 1 kg and 4 kg are same. The ratio of their momentum is
5. A bead starts sliding from a point Pon a frictionless wire with initial velocity of $5ms^{-1}$ Find the point R. (take g =$10ms^{-2}$)



6. Which of the following graphs best represents the graphical relation between momentum (p) and kinetic energy (K) for a body in motion?
7. A car is accelerated from 10 ms^{-1} to 15 ms^{-1}. The increase in kinetic energy is E_{k_1}.Again the car is accelerated from $15ms^{-1}$ to 20 ms^{-1}. The increase in kinetic energy is now E_{k_2}. What is the ratio of E_{k_1}/E_{k_2}?
8. The heart does 2.5 J of work in each heart beat. How many times per minute it beat, if its power is 4 watt?
9. A man carries a load of 50 kg through a height of 40 m in 25s. If the power of the man is 1568 W, then find his mass? (Take g = $10ms^{-2}$)
10. What horse power engine is required to lift 18.24 quintals of coal per minute from a mine 50 m deep?

CHEMISTRY

11. Define atomic mass unit'.How is it linked with relative atomic mass?
12. What do you mean by the term ion ? How many types of ions do you kow?
13. Give the example of :
    (i) trivalent cation ; monopvalent anion and the compound formed by their combination
    (ii) divalent cation divalent anion and compound formed by their combination
14. What mass of silver nitrate will react with 5.85g of sodium chloride to produce 14.35g of silver chloride and 8.5g of sodium nitrate if the law of conservation of mass is true?
15. Define polyatomic ions with examples.
16. Give an example of molecules of element and molecules of compound.
17. Valency of phosphorus is 3 and 5 .Write the formulae of its oxides and chlorides.
18. A metal shows the valency of 2 as well as 3. Write the formulae of its chlorides oxides, sulphates and phosphates.
19. 0.44 gram of a hydrocarbon on oxidation gives 0.88g of CO_2 and 1.8 gram of H_2O. Do these data confirm the law of conservation of mass?
20. The atomic mass of many elements is in fractions, Why?

BIOLOGY

21. How many types of elements together make up the xylem tissue ? Name them.

22. How are simple tissues different from complex tissues in plants?
23. Differentiate between parenchyma, collenchyma and sclerenchyma on the basis of their cell well.
24. What are the functions of the stomata?
25. What is the role of epidermis in plants?
26. How does the cork act as a protective tissue?
27. Give reason for
    (a) Meristematic cells have a prominent nucleus and dense cytoplasm but they lack vacuole.
    (b)Intercellular spaces are absent in sclerenchymatous tissue.
    (c) We get a crunhchy and granular feeling when we chew pear fruit.
    (d) Branches of a tree move and bend freely in high wind velocity.
28. Why are xylem and phloem called complex tissue? How are they different from one another?
29. Differentiate between meristematic and permanent tissue.
30. What is plant tissue? Describe the differtent types of meristematic tissues.

MATHS

31. If a= $\frac{2^{x-1}}{2^{x-2}}$ b=$\frac{2^{-x}}{2^{x+1}}$ and a-b =0 then find the value of x.
32. Show that $\frac{1}{1+x^{a-b}} + \frac{1}{1+x^{b-a}} = 1$
33. If p = $\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ and q = $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$,find the value of p^2+q^2.
34. If $\sqrt{2}$=1.414 and$\sqrt{3} = 1.732$ then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$.
35. Insert an irrational number between 3 and 5
36. The following data on the number of girls (to the nearest ten) per thousand boys in different section of Indian society is given below:

Section	No of girls per thousand boys
Scheduled caste(SC)	**940**
Scheduled caste(SC)	970
Non SC/ST	920
Backward districts	950
Non- backward districts	920
Rural	930
Urban	910

(i) Represent the given information by a bar graph.

(ii) Which condition is the major cause of women's ill health and death worldwide?

37.Draw a histogram for the following data:

Wt.(inkg)	40-44	45-49	50-54	55-59	60-64	65-69
No. of Stu.	2	8	12	10	6	4

38.The following table given the distribution of students of two sections according to the marks obtained by them:

Section A		*Section B*	
Marks	*Frequency*	*Marks*	*Frequency*
0 – 10	*3*	*0 – 10*	*5*
10 – 20	*9*	*10 – 20*	*19*
20 – 30	*17*	*20 – 30*	*15*
30 – 40	*12*	*30 – 40*	*10*
40 – 50	*9*	*40 – 50*	*1*

Represent the marks of the student of both the sections on the same graph by two frequency polygons. From the two polygons compare the performance of the two sections.

39. The marks obtained by 17 students in a mathematics test(out of 100) are given below:

91,82,100,100,96,65,82,76,79,90,46,64,72,66,68,48,49 the range of the data is

40. In a frequency distribution the mid – value of a class is 10 and the width of the class is 6.The lower limit of the class is