

NEW STANDARD ACADEMY

Exam

Date : 03-07-23

NEET - JEE

CLASS : 11TH

Marks: 60

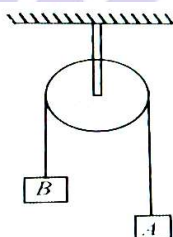
Time: 90:MIN

PHYSICS

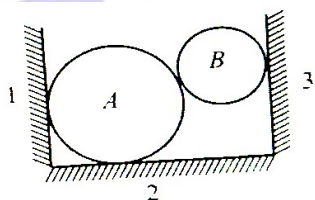
1. A sphere of mass m is held between two smooth inclined walls. For $\sin 37^\circ = 3/5$, the normal reaction of the wall(2) is equal to.



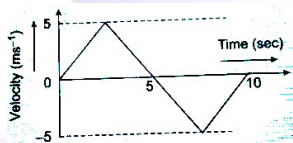
2. Figure below shows Block A of 20 kg mass and Block B of mass 5 kg connected through an inextensible string passing over an ideal pulley.? Find the acceleration -



3. Two spheres A and B are placed between two vertical walls as show in figure. Draw the free body diagrams of both the spheres.



4. A balloon has a mass of 10 gram in air. The air escapes from the balloon at a uniform rate with a velocity of 5 cm/s and the balln shrinks completely in 2.5 s. Calculate the average force acting on the ballon.
5. The v-t plot of a moving object is shown in the figure. The average velocity of the object during the first 10 seconds is-



6. A car moves for half of its time at 80 km/h and for rest half of time at 40 km/h. Total distance covered is 60 km. What is the average speed of the car.

7. A particle is projected with speed 10 m/s at an angle 60° with horizontal. Find : i. time of flight ii. range iii. Maximum height
8. For what value of 'a' $\vec{A} = a\hat{i} + 2\hat{j} - \hat{k}$, $\vec{B} = 2\hat{i} + \hat{j} + 2\hat{k}$ and $\vec{C} = 2\hat{i} - 2\hat{j} + \hat{k}$ are coplanar?
9. 2 cm on a main scale of vernier calipers is divided into 20 equal parts. If 20 divisions of vernier scale coincide with 16 divisions of the main scale. Find the least count of Vernier caliper.
10. A physical quantity x is calculated from the relation $x = \frac{a^2 b^2}{c \sqrt{d}}$. If percentage error in a, b, c and d are 2%, 1%, 3% and 4% respectively. What is the percentage error in x ?

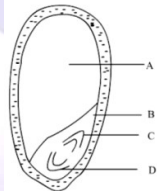
CHEMISTRY

11. Calculate the volume and mass of 0.2 mol of O_3 at STP.
12. Calculate the volume of 20 g of hydrogen gas at NTP.
13. Calculate and compare the energies of two radiations, one with a wavelength of 300 nm and the other with 600 nm.
14. Electromagnetic radiation of wavelength 242 nm is just sufficient to ionize the sodium atom. Calculate the ionization energy of sodium in kJ mol^{-1} ($h = 6.626 \times 10^{-34} \text{ Js}$).
15. With the help of ground state, electronic configurations of the elements Cr_{24} , Sc_{21} , N_7 , deduce the possible values of all the four quantum numbers for the 19th electron of Cr, 21st electron of Sc and p electron of N
16. Find the ratio of spin only magnetic moments of Fe^{3+} and Co^{2+} .
17. The electron affinity of chlorine is 3.7 eV. How much energy in kcal is released when 2g of chlorine is completely converted to Cl ion in a gaseous state? ($1 \text{ eV} = 23.06 \text{ kcal mol}^{-1}$)
18. Arrange the following oxides in order of increasing molecular (acidic) character. SO_3 , Cl_2O_7 , CaO and PbO_2

19. Why does nitrogen have a less favourable (more positive) electron-affinity than its neighbours on either side, C and O ?
20. Arrange the following in order of increasing ionic radius:
- Cl^- , P^{3-} , S^{2-} , F^-
 - Al^{3+} , Mg^{2+} , Na^+ , O^{2-} , F^-
 - Na^+ , Mg^{2+} , K^+

BIOLOGY

21. How would you differentiate primary lysosome and secondary lysosome?
22. Name the covalent bond that links to amino acid in the protein also give the example.
23. Differentiate between-
- primary and secondary metabolites
 - Competitive and noncompetitive inhibition
 - Nucleoside and nucleotide
 - Essential and non essential amino acids
24. What is the significance of meiosis-I explain?
25. Give the difference between
- Radial and conjoint collateral vascular bundle
 - Open and closed vascular bundle
 - Exarch and endarch condition in vascular bundle
 - Anatomy of dicot and monocot leaf
26. Why the endodermal cells possess Casparian strip in their radial and transverse wall of roots?
27. Give the floral diagram and floral formula of solanum nigrum.
28. Give any two reason to justify that onion bulb is a modified stem.
29. Longitudinal section of maize grain is shown in the diagram level the parts A to D



30. Define -
- Perigynous flower with example
 - Pentamerous flower
 - Apocarpus and syncarpus condition of carpel
 - Simple fruit

MATHS

21. Find a degree measure of the angle subtended at the centre of a circle of radius 100 cm by an arc of length 22 cm (Use $\pi = \frac{22}{7}$).
22. Find the general solution of the equation $\cos 3x + \cos x - \cos 2x = 0$
23. Solve: $\cos^5 x - \sin^5 x = 1$.
24. Solve the system of inequalities $3x+4y \leq 60, x+3y \leq 30, x \geq 0, y \geq 0$ graphically.
25. In a survey of 25 students, it was found that 15 chose mathematics, 12 chose physics and 11 chose chemistry, 5 chose mathematics and chemistry, 9 chose mathematics and physics, 4 chose physics and chemistry and 3 chose all the three as their favorite subjects. Find the number of students who chose-
- Only chemistry
 - Only mathematics
 - Mathematics and physics but not chemistry.
 - Physics and chemistry but not mathematics.
26. Let R be the relation on the set N of natural numbers defined by $R = \{(a, b) : a + 3b = 12, a \in N\}$. Find:
- R
 - Domain of R
 - Range of R
27. If $x_1, x_2, x_3, \dots, x_n$ are in A.P. whose common difference is α , then the value of $\sin \alpha (\sec x_1 \sec x_2 + \sec x_2 \sec x_3 + \dots + \sec x_{n-1} \sec x_n)$ is
28. Solve the equation: $12x^4 - 56x^3 + 89x^2 - 56x + 12 = 0$.
29. The centroid of a triangle ABC is at the point (1,1,1). If the coordinates of A and B are (3,-5,7) and (-1,7,-6) respectively, Find the coordinates of the point C.
30. The mid-points of the sides of a triangle are (5,7,11), (0,8,5) and (2,3,-1). Find the coordinates of the vertices of the triangle.