NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 11 (Biology) DPP (Academy) 12/08/2024

1. In which class of coelenterate, the polyp and medusa both are found in one animal?
2. In which type of habitat Hydra is found?
3. What is common amongst tapeworm, liverfluke and planarian?
4. Name the primary host of Fasciola hepatica.
5. How does male and female Ascaris can be identified?
6. Name the sense organs present in Ascaris concerned with chemoreception?
7. Name the causative agent of filariasis.
8. Which animal is commonly known as sea mouse?
9. In which part of human body adult Wuchereria bancrofti lives?
10. What is metagenesis? Mention an example which exhibits this phenomenon.
11. Sort out the animals on the the the basis of their symmetry(radial or bilateral) coelenterates, ctenophores, annelids, arthropods ,and echinoderms.
12. Differentiate between : Polyp and medusa.
13. Match the phyla listed under column I with the level of organization given under column II; choose the answer which gives the correct combination of alphabets of the two columns:

Column I (Phylum)	Column II (Level of Organization)
A Porifera	1 Cell-tissue
B Protozoa	2 Protoplasmic
C Cnidaria	3 Organ-system
D Chordata	4 Cellular

14. Match the symmetry listed under column I with the phyla given under column II; choose the answer which gives the correct combination of the alphabets of the two column:

Column I (Symmetry)	Column II (Phylum)
A Asymmetry	1 Annelida
B Radial symmetry	2 Ctenophora
C Biradial symmetry	3 Cnidaria
D Bilateral symmetry	4 Porifera

15. Match the names of phyla listed under column I with the body cavity given under column II; choose the answer which gives the correct combination of the two columns

Column I (Phylum)	Column II (Body cavity)
A Platyhelminthes	1 Enterocoel
B Nematoda	2 No body cavity
C Annelida	3 Pseudocoel
D Echinodermata	4 Schizocoel

16. _____body plan is exhibited by sponges.
17. _____occurs in Porifera and Coelenterata.
18. Segmentation or metamerism is first seen in_____
19. Coelom is a space between splitted_____
20. Jellyfishes, sea anemones and their relatives have_____ symmetry and their cells form_____.

NEW STANDARD ACADEMY

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CLASS 11 (CHEMISTRY) DPP (Academy) 12/08/2024

1. In the reaction, $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$. What is the sign of work done?
2. In the reaction, $PCl_5(g) \rightarrow PCl_3(g) + Cl_2(g)$. What is the sign of work done?
3. In the reaction, $N_2(g) + O_2(g) \rightarrow 2NO(g)$. What is the sign of work done?
4. A gas is filled in a cylinder fitted with a piston. Volume of the gas is 4 litre. The gas expands to 10 litres against an average pressure of 722 torr. Calculate the work done by the gas.
5. A system absorbs 500 J of heat and does 200 joules of work on surroundings. Calculate the change in internal energy of the system.
6. A system absorbs 100 J of heat and 100 J work is done on the system. Calculate the change in internal energy
7. A system gives out energy equal to 20 J and work done on the surrounding is 40 joule. Calculate the change in internal energy
8. Work done on the system is 200 J and heat given out by the system is 500 J. Calculate the change in internal energy of the system.
9. Increase in internal energy of a system is 350 J. It does work of 700 J on the surroundings. How much heat the system needs?
10. A gas absorbs 200 J of heat and expands against the constant external pressure of 1.5 atm. The initial and final volume of the gas is 0.5 L and one litre. Calculate the change in internal energy.
11. 400 cm³ of H_2 gas is compressed to half of its volume by applying an average pressure of 0.5 atm. During the process 8 joules of heat flows out to surroundings. Calculate the change in internal energy of the system.
12. A gas absorbs heat equal to 100 calories. The gas expands against a constant pressure of one atmosphere and volume of the gas increases by 20 litre. Calculate the change in internal energy of the gas.
13. A system does 100 J work on surroundings and absorbs 150 J heat. Calculate the change in internal energy of the system.
14. During 200 J work done on the system, 140 J of heat is given out. Calculate the change in internal energy.
15. 600cm³ of N_2 is compressed to 300cm³ by applying a constant pressure of 0.5 atm. During the change 7 J of heat is given out to the surroundings. Calculate the change in internal energy of the system.
16. A gas expands from 14 litre to 19 litre against a constant pressure of 2 atm. During the change 600 J of heat flows in the gas from the surroundings. Calculate ΔU of the system.
17. One mole of O_2 occupying 5 litre is allowed to expand to 14 litre against a constant pressure of 1 atm Calculate the work done by the gas.
18. A system absorbs 710 J of heat. The increase in ΔU is 460 J. What is sign and value of work?
19. 500cm³ of an ideal gas is compressed to half of its volume at constant pressure 0.5 atm. 10 J of heat also flows into the system from the surrounding. Calculate ΔU.
20. One mole of an ideal gas contained in 2 litre vessel at 2 atm pressure is allowed to enter into an evacuated bulb of 10 litre. Calculate the work done.

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 11 (Math's) DPP (Academy) 12/08/2024

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1. If the product of two positive numbers is 9, then the possible value of the sum of their reciprocals lies in the interval :

2. Let the sequence a_1, a_2, a_3, ... a_{2n-1}, a_{2n} form an A.P. Then the value of, $a_1^2 - a_2^2 + a_3^2 - .... + a_{2n-1}^2 - a_{2n}^2$ is

3. If a, b, c are three unequal numbers such that a, b, c are in A.P. and b – a, c – b, a are in G.P., then a : b : c is

4. A postman delivered daily for 42 days 4 more letters each day than on the previous day. The total delivery for the first 24 days of the period was the same as that for the last 18 days. How many letters did he deliver during the whole period?

5. K is a positive integer such that 36 + K, 300 + K, 596 + K are the squares of three consecutive terms of an AP. Find K.

6. If nth term of the series $3\frac{1}{3}$, 2, $1\frac{3}{7}$, $1\frac{1}{9}$,....... is $\frac{an+10}{bn+c}$, $\forall$ n $\in$ N, then find the value of (a + b + c).

7. Find the sum of the sequence : $\frac{1}{9} + \frac{1}{18} + \frac{1}{30} + \frac{1}{45} + \frac{1}{63} +........\infty$

8. Greatest positive term of a H.P. whose first two terms are 2/5 and 12/23 is–

9. The value of the sum $\frac{1}{3^2+1} + \frac{1}{4^2+2} + \frac{1}{5^2+3} + \frac{1}{6^2+4}.... \infty$ is equal to.

10. Let the nth term of a series be given by $t_n = \frac{n^2-n-2}{n^2+3n}$, n $\geq$ 3. The product $t_3 t_4$ ......t_{50} equals

11. If $\sqrt{1+\frac{1}{1^2}+\frac{1}{2^2}} + \sqrt{1+\frac{1}{2^2}+\frac{1}{3^2}} + \sqrt{1+\frac{1}{3^2}+\frac{1}{4}} +......+ \sqrt{1+\frac{1}{(1999)^2}+\frac{1}{(2000)^2}} = $ x $-\frac{1}{x}$, then find the value of x

12. Find the sum of infinite terms of the series :$\frac{3}{2.4} + \frac{5}{2.4.6} + \frac{7}{2.4.6.8} + \frac{9}{2.4.6.8.10} +.....$

Consider Sn = $\frac{8}{5} + \frac{16}{65} + ...+ \frac{8r}{4r^4+1}$

13. Sum of infinite terms of above series will be

14. The value of S_{16} must be

15. If Sn = $\frac{an^2+bn}{cn^3+dn^2+en+1}$ when a, b, c, d, e are independent of 'n', then

16. If < a_n > and < b_n > be two sequences, given by $a_n = x^{2-n}+ y^{2-n}$; $b_n = x^{2-n} - y^{2-n}$ $\forall$ n $\in$ N, then value. of $a_1 . a_2 . a_3 ....a_n$ is ?

17. The sum of first p-terms of a sequence is p(p + 1) (p + 2). The 10th term of the sequence is

18. 50th term of the squence 3 + 12 + 25 + 42 + ... is

19. If 2a + 3b + c = 3 ; a > 0, b > 0, c > 0, then the greatest value of $a^2 b^5 c^2$

20. If *a, b, c are* distinct and are G.P. with common ratio r such that *a ,2b, 3c from an A.P., then r equals*

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 11 (Physics) DPP (Academy) 05/08/2024

1. A person of mass 60 kg is inside a lift of mass 940 kg and presses the button on control panel. The lift starts moving upwards with an acceleration $1.0 ms^{-2}$ Find the tension in the supporting cable if $g = 10 ms^{-2}$

2. Two blocks of mass 1 kg and 2 kg are connected by an inextensible string passes over a friction less pulley as shown in figure. Calculate the acceleration of these blocks.
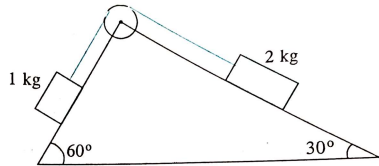
3. Why does a mango/fruits fall down from a tree, when its branch is shaken ?

4. A soda water bottle is falling freely. Will the bubbles of the gas rise in the water of bottle?

5. Why does passengers thrown outwards when a bus in which they are travelling suddenly takes a circular turn?

6. A person jumps from the upper story of a house with a load on his back. What is the force of the load on his back when the person is in air?

7. The distance travelled by a body is directly proportional to the time. Is any external force acting on him?

8. Why a gun recoils when bullet is fired from it?

9. Why does a heavy gun not recoil so strongly as the light gun firing the same bullet or using same cartridge?

10. It is easy to catch a tennis ball than a cricket ball even both are moving with same speeds?

11. Is relation $\vec{F} = m\vec{a}$ applicable to the motion of a rocket?

12. A particle of mass 0.3 kg is subjected to the force $F = -kx$ with $k = 15N\ m^{-1}$. What will be the initial acceleration if it is released from a point 20 cm away from origin?

13. A block of mass M is pulled along a horizontal friction less surface by a rope of mass m. A force P is applied at the end of the rope. Find the force exerted by the rope on the block.

14. A spring balance is attached to the ceiling of a lift. A man hangs his bag on the spring and the spring reads 49 N. when the lift is stationary. What will be the reading of the spring balance, if lift moves downward with an acceleration of $5s^{-2}$?

15. Why does Newton's first law of motion appear to be contradicted in our day to day life?

16. The speed of driving a car safely in darkness depends on the range of headlights. Explain.

17. A man stands in a lift going downward with uniform velocity experiences a loss of weight at the start but not when lift is in uniform motion. Explain.

18. A long rope is hanging, passing over a pulley. Two monkeys of equal weights climb up from the opposite ends of the rope. One of them climbs up more rapidly relative to rope. Which monkey reach the top firstly? The pulley is frictionless and rope is massless and inextensible.

19. A bird is sitting on the floor of a closed glass cage and cage is in the hands of a man. Will the man experiences any change in the weight of cage. When bird is (i) starts flying in the cage with a constant velocity (ii) flies upward with acceleration (iii) flies downward with an acceleration?

20. When a ball falls on the earth, the earth also moves up to meet it. But the motion of the earth is not noticeable. Explain why?