NEW STANDARD ACADEMY

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CLASS 10 (21-05-2024) DPP (Academy)

PHYSICS

1. Why do stars twinkle?
2. Explain why the planets do not twinkle?
3. Why does the sun appear red early in the morning?
4. Why does the sky appear dark instead of blue to an astronaut?
5. A student has difficulty in reading the black board while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected?
6. Name the phenomenon occurring in nature due to to dispersion of light?
7. Out of the blue and red light, which is scattered most by the atmosphere of the earth?
8. What is tyndall Effect?
9. State two reasons due to which myopia may be caused?
10. What part of the eye can be donated after death?

CHEMISTRY

1. The following reaction is used for the preparation of oxygen gas in the laboratory

   $2KClO_3 \xrightarrow{Heat} 2KCl + 3O_2$

   Which of the following statement(s) is (are) correct about the reaction?
   a) It is recombination reaction and is endothermic in nature
   b) It is a combination reaction
   c) It is a decomposition reaction and is accompanied by release of heat
   d) It is a photochemical decomposition reaction and exothermic in nature

2. Which one of the following processes involve chemical reactions?
   a) Storing of oxygen gas under pressure in a gas cylinder
   b) Liquefaction of air
   c) Keeping petrol in a china dish in the open
   d) Heating copper wire in the presence of air at high temperature.
3. In which of the following chemical equations ,the abbreviations represent the correct states of the reactants and products involved at reaction temperature?
   a) $2H_2(l)+O_2(l) \xrightarrow{\Delta} 2H_2O(g)$
   b) $2H_2(g)+O_2(l) \xrightarrow{\Delta} 2H_2O(l)$
   c) $2H_2(g)+O_2(g) \xrightarrow{\Delta} 2H_2O$
   d) $2H_2(g)+O_2(g) \xrightarrow{\Delta} 2H_2O(g)$
4. Which of the following are combination reaction?
   i) $2KClO3 \xrightarrow{Heat} 2KCl+3O2$
   ii) $Mgo + H_2O \xrightarrow{Heat} Mg(OH)2$
   iii) $4Al + 3O_2 \xrightarrow{Heat} 2Al_2O_3$
   iv) $Zn + FeSO_4 \xrightarrow{Heat} ZnSO_4 + Fe$
   a) i) and iii) b) iii) and iv)
   c) ii) and iv) d) ii and iii)
5. Which property is mostly related to the acids?
   a) Bitter taste b) Sour taste
   b) Pleasant smell d) Soapy touch
6. When dilute sulphuric acid is added to a solid X, a gas Y is Formed along with the formation of the salt of the solid. What could be X and Y?
   a) X: zinc; Y:oxygen
   b) X: zinc; Y: hydrogen
   c) X: copper; Y: oxygen
   d) X:carbon; Y: hydrogen
7. Which of the following Contains oxalic acid?
   a) Sour milk b) Oranges

c) Tomatoes d) Tamarind

8. Which of the following is not a mineral acid?
   a) Nitric acid b) hydrochloric acid
   c) Phosphoric acid d) citric acid
9. The acid that imparts sour taste to butter is:
   a) Acetic acid b) Oxalic acid
   c) Lactic acid d) Tartaric acid
10. Which acid is present in the stings of bees and ants?
   a) Acetic acid b)nitric acid
   c) oxalic acid d) formicacid

BIOLOGY

1. A man respires about :
   a) 40 times per minute
   b) 72 times per minute
   c) 100 times per minute
   d) 16 - 20 times per minute
2. Heart is incompletely 4 chambered in:
   a) Fishes b) Amphibians
   c) Reptiles d) Birds
3. Valves are not found in:
   a) Veins b) Arteries
   c) Heart d) All of these
4. A person exercising hard shows the following except:
   a) Decrease in blood glucose
   b) Increase in lactic acid
   c) Increase in glycogen
   d) None of these
5. Circulatory system is open in
   a) Prawn b) Toad c) Lizard d) Pigeon
6. Normal blood pressure (systolic / diastolic) is____ mm of Hg
   a) 120/80 b) 160/80
   c) 120/60 d) 180/80
7. Heart beat initiates from:
   a) Sino atrial node b) Bundle of his
   c) Purkinje fibers d) Both a) And b)
8. In which from is food transported in plants?
   a) Sucrose b) Fructose
   c) Glucose d) Lactose
9. Choose the correct sequence:
   a) Pulmonary vein – Pulmonary artery – Left auricle – Right ventricle
   b) Pulmonary artery – Right auricle – Left ventricle – Pulmonary vein
   c) Right Auricle – Pulmonary vein – Pulmonary vein – Left ventricle
   d) Left ventricle – Pulmonary vein - Pulmonary artery – Right auricle
10. Blood pressure is measured by an instrument called:
   a) Barometer b) Sphygmomanometer
   c) Photometer c) Manometer

MATHS

1. The equation $(m+1)\,x^2 + 2mx + 5x + m + 3 = 0$ has equal roots. Find the value of m.
2. The roots of the equation $3x^2 - 2x + 3 = 0$ are
   a) Real and distinct
   b) Real and equal
   c) Imaginary
   d) Irrational and distinct
3. Find the sum and the product of the roots of the equation

   $\sqrt{3}x^2 + 27x + 5\sqrt{3} = 0$

a) $-9\sqrt{3}, 5$
b) $9\sqrt{3}, 5$
c) $6\sqrt{3}, -5$
d) $6\sqrt{3}, 5$

4. Ifα $and\beta$ are the roots of the equation x^2-12x+32=0 then find value of $\frac{\alpha^2+\beta^2}{\alpha+\beta}$

e) $\frac{-8}{3}$ b) $\frac{8}{3}$ c) $\frac{-20}{3}$ d)$\frac{20}{3}$

5. For what value of k , If one root of the quadratic equation $9x^2$-18x+k=0 is double of the other?

a) 36 b) 9 c) 12 d) 8

6. If If A and B are the the roots of the quadratic equation X^2-12x+27=0, then A^3+B^3 is _____

a) 27 b) 729 c) 756 d) 64

7. If the quadration equation $(a^2-b^2)\,x^2 + (b^2-c^2)\,x + (c^2-a^2)=0$ has equal roots then which of the following is true?

a) $b^2+c^2=a^2$
b) $b^2+c^2=2a^2$
c) $b^2-c^2=2a^2$
d) $a^2=b^{2+}+2c^2$

8. If the roots of the equation $3ax^2+2bx+c=0$ are in the ratio 2:3 then___

a) 8ac=25b
b) $8ac=9b^2$
c) $8b^2=9ac$
d) $8b^2=25ac$

9. The difference of the roots of $2y^2$-ky+16=0 is $\frac{1}{3.}$Find k

a) $\pm\frac{32}{3}$
b) $\frac{34}{3}$
c) $\pm\frac{38}{3}$
d) $\pm\frac{40}{3}$

10. If the roots of the equation $3x^2$+9x+2=0 are in the ratio m:n then find $\sqrt{\frac{m}{n}}+\sqrt{\frac{n}{m}}$

a) $\frac{-3\sqrt{3}}{\sqrt{2}}$
b) $\frac{3\sqrt{2}}{2}$
c) $\frac{3\sqrt{3}}{\sqrt{2}}$
d) $-\frac{3\sqrt{3}}{2}$