Way to success

Quarterly Examination -2019 (Key)

10th science

PART – I (MARKS - 12)

| Choose the correct answer | | | | | | |
|---------------------------|---|------|----------------------|--|--|--|
| 1.c | Cycling | 7.b | Mitochondrial matrix | | | |
| 2.c | Zero | 8.b | Canines | | | |
| 3.c | Ohm | 9.a | Retina of eye | | | |
| 4.C | 32g | 10.a | 12 | | | |
| 5.C | Fe ₂ O ₃ . x H ₂ O | 11.b | Meta centric | | | |
| 6.b | Blue vitriol | | | | | |

PART – II (MARKS - 14)

| 13. | When a number of like or unlike parallel force act on a rigid body and the body is in equilibrium, then the algebraic sum of the moments in the clockwise direction is equal to the algebraic sum of the moments in the anticlockwise direction. (or) At equilibrium, the algebraic sum of the moments of all the individual forces about any point is equal to zero. | | | | |
|-----|--|---|--|--|--|
| | Convex lens | Concave lens | | | |
| | 1. Thicker in the middle than at edge | 1. Thinner in the middle than at edge. | | | |
| 14. | 2. Converging lens | 2. Diverging lens | | | |
| | 3. It is used to correct Hypermeteropia | 3. It is used to correct myopia | | | |
| | 4. Produces mostly real images | 4. Produces virtual images | | | |
| 15. | Atomicity - The number of atoms present in the molecule is called atomicity. | | | | |
| 16 | False. (Correct statement : Moseley's periodic table is based on Atomic number) | | | | |
| 10. | False. (Correct statement : An alloy is a homoger | neous mixture of metals.) | | | |
| 17. | 1. CuSO ₄ .5H ₂ O 2. CaSO ₄ .2H ₂ O 3. NaOH 4. CaO | 18. Intermembrane Membrane Membrane Membrane Membrane Membrane Membrane Membrane Membrane Membrane Space | | | |
| | a) Dental formula is $I_{\frac{2}{1}}^{\frac{2}{1}}, C_{\frac{0}{2}}^{\frac{0}{2}}, PM_{\frac{3}{2}}^{\frac{3}{2}}, M_{\frac{3}{2}}^{\frac{2033}{1032}}$ | | | | |
| 19. | b) The gap between the incisors and premolar is called diastema. It helps in mastication and chewing | | | | |
| | of food in herbivorous animals. | | | | |
| 20 | Pituitary gland is referred as "Master gland". | | | | |
| 20. | Reason (R) : It controls the functioning of other endocrine glands. | | | | |
| | • Allosomes are chromosomes, which are responsible for determining the sex of an individual. They | | | | |
| 21 | are also called sex chromosomes (or) hetero chromosome. | | | | |
| | • Human male have XY chromosomes. | | | | |
| | Human Female have XX chromosomes. | | | | |
| 22. | Current through the conductor $I = 2 A$, Potential Difference $V = 30 V$ | | | | |
| | From Ohm's Law: $R = .Therefore$, $R = VI = 302 = 15 \Omega$ | | | | |

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| Quai | terry Examination - 2019 (Ney) Toth Science | | | | | | |
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| PART - III (MARKS -28) | | | | | | | |
| | Newton's Universal gravitational law | | | | | | |
| | • Every particle of matter in this universe attracts every other particle with a force. This force is directly proportional to the product of their masses and inversely proportional to the square of the distance between the centers of these masses. | | | | | | |
| | • The direction of the force acts along the line joining the masses. | | | | | | |
| 23 | Mathematical Expression of Universal gravitational law: | | | | | | |
| 25 | Let, m_1 and m_2 be the masses of two bodies A and B placed | | | | | | |
| | 'r' meter apart in space. M_1 F_1 F_2 M_2 | | | | | | |
| | $F \propto m_1 m_2$ (1) $F \propto \frac{1}{r^2}$ (2) | | | | | | |
| | On combining (1) and (2), $F \propto \frac{m_1 m_2}{r^2} \Rightarrow F = \mathbf{G} \frac{m_1 m_2}{r^2}$ | | | | | | |
| | Where G - Universal gravitational constant $G = 6.674 \times 10^{-11} Nm^2 kg^{-2}$ | | | | | | |
| | • Light is a form of energy. | | | | | | |
| | • Light always travels along a straight line. | | | | | | |
| | • Light does not need medium for its propagation. It can even travel through vacuum. | | | | | | |
| 24 | • The speed of light in air is $C = 3 \times 10^8 m s^{-1}$ | | | | | | |
| • Light is in the form of waves, it is characterized by a wavelength (λ) and a frequency (γ) | | | | | | | |
| <i>a)</i> | are related by the following equation $\mathbf{C} = \boldsymbol{\gamma} \boldsymbol{\lambda}$ | | | | | | |
| | • Different coloured light has different wavelength and frequency. | | | | | | |
| | • Among the visible light, violet light has the lowest wavelength, and red light has the highest wavelength. | | | | | | |
| | • When light is incident on the interface between two media, it is partly reflected and partly refracted. | | | | | | |
| 24. | • Elaborate view of the Galaxies, Planets, stars and other heavenly bodies is possible. | | | | | | |
| b) | • Camera can be attached for taking photograph for the celestial objects. | | | | | | |
| | • Telescope can be viewed even with the low intensity of light. | | | | | | |
| | An ideal gas obeys Boyle's law, Charles's law and Avogadro's law. | | | | | | |
| | According to Boyle's law $PV = Constant \dots (1)$ | | | | | | |
| | According to Charles's law $\frac{1}{T} = \text{Constant} \dots \dots$ | | | | | | |
| | According to Avogadro's law $\frac{v}{n} = \text{Constant} \dots \dots$ | | | | | | |
| | Combine these (1) , (2) & (3) three equations | | | | | | |
| | $\frac{PV}{nT} = \text{Constant}$ | | | | | | |
| | If you consider a gas, which contains μ moles of the gas, the number of atoms contained will be | | | | | | |
| | equal to μ time the Avogadro number N_A $\therefore N = \mu N_A$ | | | | | | |
| 25. | Using (5) in (4) $\frac{PV}{\mu N_A T}$ = Constant | | | | | | |
| | The Constant is taken to be K_B (Boltzman constant) | | | | | | |
| | $K_B = 1.38 \times 10^{-23} J K^{-1}$ | | | | | | |
| | $\frac{PV}{WNT} = K_B$ | | | | | | |
| | $PV = uN_AK_BT$ | | | | | | |
| | Here $\mu N_A K_B = R$. (Universal Constant) $\therefore \mathbf{PV} = \mathbf{RT}$ | | | | | | |
| | $R = 8.31 mol^{-1}K^{-1}$ | | | | | | |
| | Ideal gas equation is also called equation of state because it gives the relation between the state variables | | | | | | |
| and it is used to describe the state if any gas. | | | | | | | |
| 26 Smelting: Smelting is the process of reducing the roasted metallic oxide from the metallic | | | | | | | |
| 20. | condition. In this process, impurities are removed as slag by the addition of flux. | | | | | | |

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| | Compound 'A' is CuSo ₄ . $5H_2O$ (Copper sulphate penta hydrate), when the blue coloured CuSo ₄ . $5H_2O$ ('A') | | | | | |
| 27. | is heated, it losses five water molecules and becomes colourless Cuso4 (Anhydrous copper sulphate) 'B'. If you | | | | | |
| | add few drops of water it returns back into blue coloured CuSo ₄ . 5H ₂ O 'A' (Copper sulphate penta hydrate) | | | | | |
| 28. | The male reproductive system of rabbit consists of a pair of testes, which are ovoid in shape. Testes are enclosed by scrotal sacs in the abdominal cavity. Each testis consists of numerous fine tabulates called seminiferous tubules. This network of tubules lead into a coiled tubule called epididymis, which leads into the sperm duct called vas deferens. The vas deferens joins in the urethra just the penis. The urethra runs backward and passes into the penis. There are three accessory glands namely prostate gland, cowper's gland and perineal gland. Their secretions are involved in reproduction. | | | | | |
| | Functions of blood | | | | | |
| | • Transport of res | piratory gases (Oxygen and CO2). | | | | |
| | • Transport of dig | sested food materials to the different body cells. | | | | |
| 29. | • Transport of ho | rmones. | | | | |
| | • Transport of nit | rogenous excretory products like ammonia, urea and uric acid. | | | | |
| | It is involved in It gets as buffer | protection of the body and defense against diseases. | | | | |
| | It acts as buller It maintains pro | and helps in regulation of pH and body temperature. | | | | |
| | It maintains pro | | | | | |
| | Cerebral cortex | Sensory perception control of voluntary functions language thinking memory | | | | |
| | Cerebrar contex | decision making, creativity. | | | | |
| | Thalamus | Acts as relay station. | | | | |
| 30. | Hypothalamus | Temperature control, thirst, hunger, urination, important link between nervous | | | | |
| | | system and endocrine glands. | | | | |
| | Cerebellum | Maintenance of posture and balance, coordinate voluntary muscle activity. | | | | |
| | Pons and medulla | Ia Role in sleep-awake cycle, cardiovascular, respiratory and digestive control centers. | | | | |
| 31. a) | Among the t generative cell The other sp nucleus is calle | wo male gamete produced by s one fuses with egg. erm fuses with the secondary of triple fusion. | | | | |
| | a) Mass of | f the solute = 1.5 g | | | | |
| | Mass of the solvent = 15 g | | | | | |
| | Solubility of the solute = $\frac{\text{Mass of the Solute}}{\times 100}$ | | | | | |
| 52. | Solubility of the solution $\frac{15}{15}$ | | | | | |
| | Solution the solute = $\frac{1.5}{5} \times 100 = 10 \text{ g}$ | | | | | |
| | b) A solution consisting of two components are called binary solution. | | | | | |



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