Answer Key

Class : 9 **Subject : Science** **9/28**

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1	C) 10 min.	1
2	A) Force acting vertically downwards	1
3	C) Electric energy → heat energy	1
4	Zero	1
5	Discount – 200 ₹ Billing total – 700 ₹ Grand total – 900 ₹ Cost of 1 unit – 15 ₹ The total units used $\frac{900}{15} = 60$ The total units consumed is 60.	1
6	17.2 m	1
7	Mass of the ball = 10 Kg v = 0 u = $10ms^{-1}$ t = 10 second $a = \frac{v-u}{t}$ $= (0ms^{-1} - 10ms^{-1})/10s$ $= \frac{-10}{10}$ $= -1\ ms^{-2}$ F = ma F = 10× –1 F = –10N	2
8	Rubber ball reaches earth first we know that in a free fall acceleration doesn't depend on mass of the object. The feather falls slowly because the resistance of air slows the falling of feather.	2
9	To every action there is an equal and opposite reaction. Examples : 1) Bullet fired from a gun. 2) Launching of rocket. (any other right example)	3

P.T.O.

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10	Every object in the universe attracts other object with a force which is proportional to the product of their masses and inversely proportional to the square of the distance between them. Importance of the universal law of gravitation : i) the force that binds us to the earth ii) the motion of the moon around the earth iii) the motion of planets around the sun iv) the tides due to the moon and the sun	3
11	**Potential energy** The potential energy possessed by the object is the energy present in it by virtue of its position or configuration. **Kinetic energy** Kinetic energy is the energy possessed by the an object due to its motion. An object increases its energy when raised through a height. This is because work is done on it against gravity while it is being raised.	2 1
12	a) $a = \frac{v-u}{t}$ or $a = f/m$ b) The equations of motion 1) $v = u + at$ 2) $s = ut + \frac{1}{2} at^2$ 3) $2as = v^2 - u^2$	1 3
13	SONAR – Sound Navigation and Ranging The working of SONAR * the transmitter produces and transmits ultrasonic waves. * these waves travel through water and after striking the object on the seabed get reflected back. * the reflected waves are sensed by the detector. * the detector converts the ultrasonic waves into electrical signals which are appropriately interpreted. distance is calculated using $2d = v \times t$ d = distance, v = velocity, t = time	1 4
14	B) 373K	1
15	A) Make the path visible by scatter the beam of light	1
16	Petrol particles use energy from our palm and evaporates	1
17	It has intermediate property between metal and non-metal.	1
18	a) By taking an electron of an atom by other element b) Its combining capacity or velocity is zero	1 1
19	They have the same atomic number but different mass number. An isotope of uranium is used as a fuel in nuclear reactors. An isotope of iodine is used in the treatment of goitre.	1 1
20	a) x – sublimation, y – solidification b) Evaporation the factors affecting evaporation. * Increase in surface area, * Increase in temperature * Decrease in humidity * Increase in wind speed (any 2)	½ × 2 = 1 1 ½ × 2 = 1

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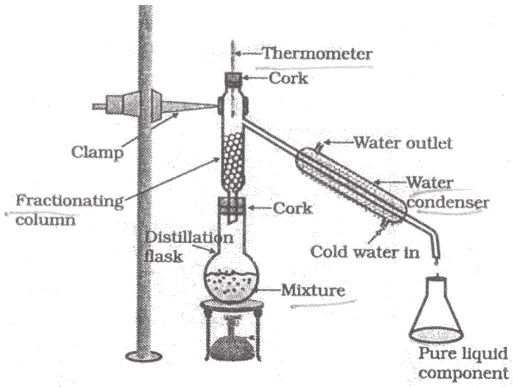
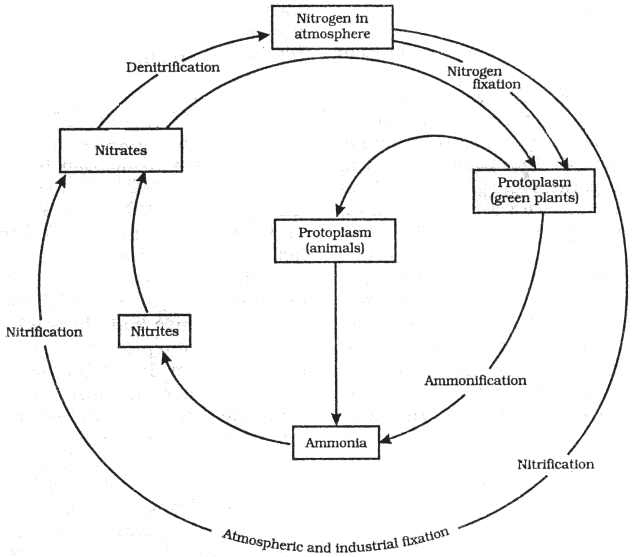
21	a) Common salt NaCl b) Sodium oxide Na_2O c) Alluminum sulphate $Al_2(SO_4)_3$	1 1 1
22	a) Molecule – A molecule is in general a group of two or more atoms that are chemically bonded together, that is tightly held together by attractive forces. b) Atomicity – the number of atoms constituting a molecule is known as its Atomicity. c) Ion – An ion is a charged particle and can be negatively or positively charged.	1 1 1
23	 *Fig. 2.10: Fractional distillation* 24  **Fig. 14.6 : Nitrogen-cycle in nature**	3+1 4
25	D) Cells are thickened at the corners	1
26	A) Cough and breathlessness-lungs	1
27	C) Supplying large quantities of nutrients to the soil	1
28	Amphibians, through gills or lungs	½, ½
29	Diseases in which ailments last for a long time or life time	1
30	Growing two or more crops simultaneously on the same field in a definite pattern	1
31	Striated muscles • Have striations, • Voluntary, • Cylindrical, • Skeletal muscles, • Multinucleated Unstriated muscles • Don't have striations, • Involuntary, • Spindle shaped, • Smooth muscles • Uninucleated (any 2)	2
32	• Plant cell lose water due to osmosis, • It's contents contracts, • Plasmolysis	1,½,½
33	• Body functions are damaged and may never recover completely. • Treatment will take time. • The person serve as source by which infection may spread to other people.	1 ½ ½

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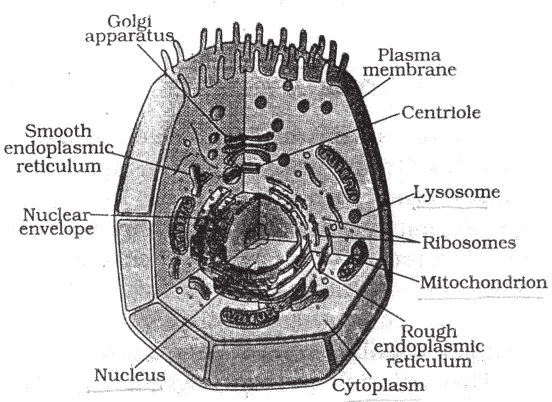
34	i) Number and quality of chicks. ii) Dwarf broiler parent for commercial chick production. iii) Summer adaptation capacity/tolerance to high temperature. iv) Low maintenance requirements; v) Reduction in the size of the egg-laying bird with ability to utilise more fibrous cheaper diets formulated using agricultural by-products (any 2)	2
35	 ***Fig. 5.5:*** *Animal cell*	3
36	a) Stomata • Enclosed by two kidney shaped cells. • They are called guard cells. b) Helps in the absorption of CO_2 from the atmosphere	½ 1 ½ 1
37	a) Hybridisation refers to crossing between genetically dissimilar plants. b) Some of the factors for which variety improvement is done are i) Higher yield. ii) Improved quality. iii) Biotic and abiotic resistance. iv) Change in maturity duration. v) Wider adaptability. vi) Desirable agronomic characteristics. (any 2)	1 2
38	a) <u>Pisces</u> : • Stream lined body, • Skin with scales • Respiration through gills, • 2 chambered heart/cold blooded • lay eggs. (any two) <u>Reptiles</u> : • Skin with scales, • Three chambered heart/cold blooded • Eggs with tough coverings, • Respire through lungs (any 2) b) i) Echinodermata. ii) Arthropoda	1 1 2