SCORING KEY/OUTLINE ANSWER AND MARKING SCHEME (2020)
Subject & Paper : **SCIENCE (BLIND)**

Sl. No.	**Key : SECTION A (CHEMISTRY)**	Mark for each point	Total Marks
1	Oxidation of fats or oils in food resulting into bad smell and taste.	1	1
2	Due to the formation of strong base NaOH and weak acid H_2CO_3 on hydrolysis. Or, $NaHCO_3 + H_2O \rightleftharpoons \underset{\text{(Strong base)}}{NaOH} + H_2CO_3$ (Weak acid)	1	1
3	Cu is highly ductile and good conductors of electricity with high melting point.	½ ½	1
4	The impure metal in the form of thick block.	1	1
5	Saturated hydrocarbons: Hydrocarbons containing carbon – carbon single bonds only along with methane …….. Example, CH_4, C_2H_6 etc ……. Unsaturated hydrocarbons: Hydrocarbons containing carbon – carbon double or triple bonds. Example, $CH_2 = CH$, $CH_3 – CH_2 – CH_3$ etc	½ ½ ½ ½	2
6	Covalent bond ……. Formula H_2X ……..	1 1	2
7	By the addition of a more active metal than silver such as Zn, Fe, Al etc $2AgNO_3(aq) + Zn(s) \rightarrow 2Ag(s) + (NO_3)_2(aq)$ Or any other similar example.	1 1	2
8	Compound A is ethanol (CH_3CH_2OH) …… B is ethane ($CH_2 = CH_2$) …… $CH_3CH_2OH \xrightarrow[170^oC]{\text{Conc. } H_2SO_4} CH_2=CH_2+H_2O$	½ ½ 1	2
9	i) Any example like, $BaCl_2(aq) + H_2SO_4(aq) \rightarrow BaSO_4(s) + 2HCl(aq)$ ii) Rusting of iron or any other example iii) Any one example/equation	1 1 1	3
10	Any two differences in physical properties like physical state/ductility/malleability/good conductors of heat & electricity/sonorous etc. Metals form basic oxides while non-metals form acidic oxides. Or, any other difference in chemical properties.	2 1	3
11	Baking soda is $NaHCO_3$ while baking powder is a mixture of $NaHCO_3$ and mild edible like tartaric acid. Evolution of CO_2 gas when heated or mixed with water causing bread or cake to swell making them soft and spongy. Equation: $2NaHCO_3 \xrightarrow{\text{Heat}} Na_2CO_3 + H_2O + CO_2$ $NaHCO_3 + H \text{ (from acid)} \xrightarrow{\text{Water}} \text{Sodium tartrate} + H_2O + CO_2$	1 1 1	3

12	Periodicity: Repetition of elements having similar properties when they are arranged in the order of increasing atomic numbers. Valence electrons determine the chemical characteristics of the element. On arranging the elements with the same valence electrons appear at regular intervals. Hence elements show periodicity in their properties. Element — Group No. — Valency A — 13 — 3 B — 14 — 4 C — 2 — 2	1 1 1 1 1	5
	Section B (PHYSICS)		
13	Definition.	1	1
14	A device that reverses the direction of flow of current through a circuit is called a commutator.	1	1
15	Because convex mirror forms erect, virtual and diminished, hence its field of view is large.	1	1
16	Because it does not produce any residue and any kind of harmful gases.	1	1
17	$R = \frac{V^2}{P} \therefore R_A = \frac{(220)^2}{80} = 605\ \Omega$ and $R_B = \frac{(220)^2}{100} = 484\ \Omega$ Hence, bulb A has higher resistance.	1 1	2
18	i) When a bar magnet is suspended freely, its north pole points towards geographical north while that south pole points towards geographical south. ii) Like poles repel each other while unlike poles attract each other.	1 1	2
19	Right-Hand Thumb Rule. If a straight conductor carrying current is holding in the right hand such that the thumb points towards the direction of current, then the tips of the curled fingers around the conductor gives the direction of the magnetic field lines.	1 1	2
20	Any two points.	1+1	2
21	The resistance of a conductor depends on (i) length of the conductor (ii) area of cross-section of the conductor and (iii) the nature of the material of the conductor.	1 1 1	3
22	(1) Whenever there is a relative motion between a coil and a magnet an induced current flows in the coil. In another words, whenever there is a change in the number of magnetic lines of force linking with a coil an induced e.m.f. is set up in the coil. (2) Induced current in the coil lasts only as long as there is change in number of magnetic lines of force linking with the coil. (3) The strength of induced e.m.f. is directly proportional to the rate of change of magnetic lines of force linked with the coil.	1x3	3
23	Any three limitations.	1x3	3

24	Statement $u = -10$ cm, $m = -3$ (for real image) $m = -\frac{v}{u}$ or $-3 = -\frac{v}{(-10)}$ $\therefore v = -30$ cm By the relation, $\frac{1}{f} = \frac{2}{R} = \frac{1}{v} + \frac{1}{u}$ or $\frac{2}{R} = \frac{1}{-30} + \frac{1}{-10} = -\frac{4}{30}$ $\therefore R = -\frac{30}{4} \times 2 = -15$ cm OR Definition (i) Convex (ii) Concave $h_i = h_o$ i.e. $m = \frac{h_i}{h_o} = \frac{v}{u} = 1$ $\therefore v = u = 50$ cm By the relation, $\frac{1}{f} = \frac{1}{v} - \frac{1}{-u} = \frac{1}{50} + \frac{1}{50} = \frac{2}{50} = \frac{1}{25}$ or $f = 25$ cm $\therefore P = \frac{1}{0.25} = \frac{100}{25} = 4$ D	2 3 2 3	5
	SECTION – C (BIOLOGY)		
25	Veins have valves.	1	1
26	The genetic constitution of an organism is called genotype.	1	1
27	Alexander Ivanovich Oparin first proposed the chemical origin of life.	1	1
28	Many organisms occupy position in different food chains, several food chains become inter connected and thus forms a food web.	1	1
29	Pancreas is the gland which secrets insulin. There is abnormal rise in blood sugar causing diabetes.	1 1	2
30	i) With the help of receptors it receives information about the changes in external environment. Then it interprets, analyses and sends appropriate message to the effectors. ii) Conducts information and transmits message to different parts of the body.	1 1	2
31	Ozone layer depletion is caused by a number of synthetic chemicals like chlorofluorocarbons (CFCS) which are used as refrigerants and in fire extinguishers. Effects: sunburn, ageing, wrinkling of skin, cataract of eye, destruction of protein, mutation of genes leading to skin cancer r melanoma etc. are some effects of U/V radiation to human population.	1 1	2
32	i) The existence of many wild species are threatened due to destruction of their natural habitat. ii) Problems of soil erosion and loss of soil fertility increases. iii) Rainfall is affected due to changes in hydrological cycle.	1+1	2
33	They are saprophytes which obtain their nourishment from organic remains. They release digestive enzymes to digest organic matter. Thus they make the soil fertile and make those substances available for the producers.	1+1	2
34	Tropism is the movement of curvature brought about by more growth on one side and less growth on opposite side of plant organ induces by some external stimuli. 1. In response to light Photo tropism 2. In response to gravity geotropism.	1+1+1	3

<table>
<tr><td>35</td><td><u>Asexual reproduction</u>
1. Asexual reproduction does not involve formation and fusion of gametes.
2. It is always uni parental.
3. The offsprings formed by asexual reproduction are genetically identical to parents
4. It is a simple and fast process</td><td><u>Sexual reproduction</u>
1. Sexual reproduction involves formation and fusion of gametes.
2. It is usually bi parental.
3. The offsprings are not identical to the parents.
4. It is an elaborate complex and slow process.</td><td>1+1+1</td><td>3</td></tr>
<tr><td>36</td><td colspan="2">1. To check the surface run off loss of water.
2. To meet increasing demands of water.
3. To avoid flooding of roads.
4. To recharge the ground water for raising the water table.</td><td>1+1+1</td><td>3</td></tr>
<tr><td>37</td><td colspan="2">Changes in living organisms over the course of generations is called organic evolution.
1. There is close relationship among the early embryonic stages of vertebrates.
2. It is difficult to differentiate a human embryo from the other vertebrate embryos of rabbit, chick salamander and fish at their early stage of embryogenesis.
3. They have more or less the same from and structures like gill clefts, motochord, tail, rudimentary eyes and ears, limb buds etc.
4. The study of embryonic development among vertebrates can also give a clear idea about the evolution of different vertebrates.</td><td>1+4</td><td>5</td></tr>
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