BANGALORE SAHODAYA QUESTION PAPER (2022-23)

Science (Code – 086)

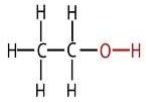
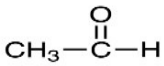
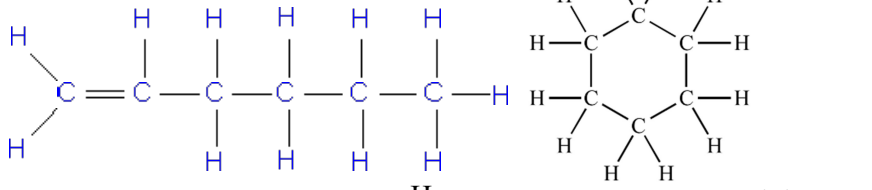
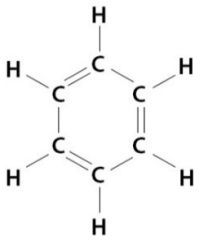
CLASS X –SET 1

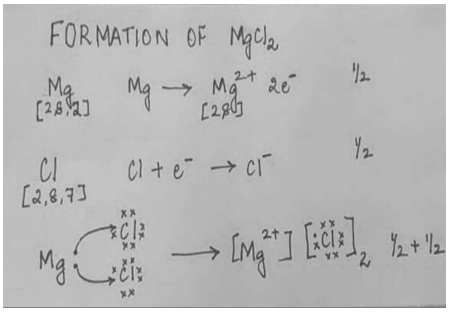
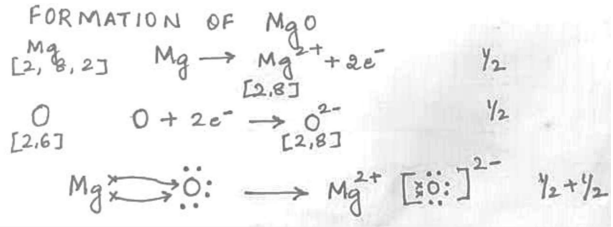
Maximum Marks: 80 **MARKING SCHEME** **Time allowed: 3 Hrs**

Date :

Q.No	Value points	Marks
1.	a)	1
2.	b)	1
3.	a)	1
4.	c)	1
5.	c)	1
6.	b)	1
7.	b)	1
8.	b)	1
9.	b)	1
10.	d)	1
11.	c)	1
12.	d)	1
13.	b)	1
14.	c)	1
15.	d)	1
16.	a)	1
17.	c)	1
18.	d)	1
19.	b)	1
20.	a)	1
21.	a) $3MnO_2(s) + 4Al(s) \rightarrow 3Mn(l) + 2Al_2O_3(s)$ b) $\mathbf{3Fe_{(s)}+4H_2O_{(g)} \rightarrow Fe_3O_{4(s)}+4H_{2(g)}}$ **OR** Brown colour fumes $2Pb(NO_3)_{2(s)} \xrightarrow{\Delta} 2PbO_{(s)}+4NO_{2(g)}+O_{2(g)}$	1 1 ½ 1 ½
22.	a. Directional growth related movements in response to a stimulus b. Muscle cells- Due to change in arrangement of special proteins Cells of sensitive plant- Due to change in turgor pressure/due to loss or gain of water	1 1
23.	a) Receptors receive the stimuli. Gustatory receptor b) Due to presence of nervous and endocrine system/ electrochemical and chemical coordination	½ ½ 1
24.	a. Haemoglobin Higher binding capacity to oxygen	½ ½

	b. Contracts and flattens during inhalation Relaxes during exhalation	½ ½
25.	Fig 13.9, Page 229 NCERT Centre of the loop Right hand thumb rule **OR** Upward/ out of the plane of the paper Statement of Fleming's left hand rule	1 ½ ½ 1 1
26.	a. Pesticides are not degradable. Hence accumulates progressively. b. Only <u>10% energy</u> is transferred from one trophic to the next. Hence very less energy is available at the higher trophic level	1 1
	SECTION – C **Q.no. 27 to 33 are short answer questions**	
27.	a. X is sodium bi carbonate / $NaHCO_3$ / baking soda b. Parent acid carbonic acid Parent base sodium hydroxide I. $Na_2CO_3.10\ H_2O$ – chemical formula Washing soda - common name II. Hydrated salts	½ ½ ½ ½ ½ ½
28.	a. More amount of energy must be supplied to break strong inter- ionic force of attraction. b. KCl in the solid state does not ionise. So no free movement of ions Hence does not conduct electricity. c. 24 carat gold is very soft which loses shape easily.	1 1 1
29.	a. Lung capillaries Walls are one cell thick for easy diffusion of gases/ efficient exchange of gases b. Plasma, proteins and blood cells escape through the pores of 'B' into the intercellular spaces in tissues to form lymph/ tissue fluid. c. Prevents mixing of oxygenated and de-oxygenated blood **OR** a. Glomerulus Blood cells, plasma containing glucose, amino acids, salts and nitrogenous waste b. To increase surface area for selective reabsorption. c. Collecting duct Collects the urine formed and allows its entry into ureter	½ ½ 1 1 ½ ½ 1 ½ 1
30.	a. To prevent damage in an appliance b. In Series c. I = P/V = 1000/220 = 4.54A 5A fuse should be used.	1 ½ 1 ½
31.	a. Myopia (i) excessive curvature of the eye lens (ii)elongation of the eyeball b. Fig 11.2 c Page 189 NCERT	½ 1 1 ½

32.	Fig 10.7 f Page 166 NCERT 1/f = 1/v + 1/u $\frac{1}{-24} = \frac{1}{v} + \frac{1}{-16}$ V=48cm , virtual erect **OR** i) Q ii) R ii) $n = \frac{c}{v}$ v = 2.08 × 10^8 m/s	1 1 1 1+1 1
33.	a. increased use of disposable paper plates, plastic, polythene and aluminium foil in packaging industries Reuse and recycle of non- biodegradable materials like plastic Using biodegradable material for food packaging b. O_2 UV $\xrightarrow[\text{rays}]{UV}$ O + O $O+O_2 \rightarrow O_3$ **(Ozone)**	1 ½ ½ 1
34.	i)  A  B ii)A is ethanol and B is ethanal iii) A is alcohol and B is aldehyde iv) $CH_3 - CH_2 - OH \xrightarrow[Or\ Acidified\ K_2Cr_2O_7]{Alkaline\ KMnO_4} CH_3COOH$ v) (i) antifreeze agent (ii) used in cough syrups (any relevent use can be written) **OR** a)  Hexene cyclohexane b) hexene – as it is unsaturated c) 18 covalent bonds d)  Benzene	½+½ ½+½ ½+½ 1 ½+½ 1+1 ½+ ½ ½+ ½ 1

35.	a. Asexual reproduction/binary fission Bacteria/paramecium/ euglena / amoeba / leishmania b. Advantage- results in large number of offsprings at a rapid rate Disadvantage- minimal variation c. Due to errors in DNA copying d. Beneficial : gives survival advantage organisms adapt to changing ecological niche **OR** a. Fertilization- Fallopian tube / oviduct Implantation- uterus b. After fertilization- formation of placenta/formation of embryo from zygote/implantation of embryo . If fertilization does not take place- shedding of the lining of uterus through vagina as blood and mucus. c. Prevents unwanted pregnancies and STDs. d. Boys above 21 would have attained physical and mental ability to raise children	½ ½ 1 1 1 1 ½ ½ 1 1 1 1
36.	a) It does not oxidise easily at high temperatures. b) Appliances cannot be operated independently. Or any other suitable reason. c) 6Ω II 3Ω , R_p = 2Ω, R_{eff} = 2 + 2 + 4 = 8Ω I = V/R_{eff} = 12/ 8 = 3/2 A / 1.5 A P = I^2R = 3/2 x3/2 x2 = 9/2 W / 4.5W	1 1 $(1\frac{1}{2} + \frac{1}{2} + 1)$
37.	a) i) magnesium ii)$MgCl_2$ b) reduced to magnesium, oxidised to chlorine.  **OR**  	½ +½ ½ +½ 2 2

38.	a. Chromosome/chromatin network/DNA found in the nucleus (only nucleus- 0.5) b. Dominant trait- purple flower Recessive trait- white flower Reason – allele 'a' codes for non-efficient protein that interrupts anthocyanin production producing white flowers c. 1 : 1 Purple : white **OR** Phenotype : all flowers are purple Genotype: AA, Aa	1 ½ ½ 1 1 ½ ½	
39.	(a) Scattering (b) Particles smaller than the wavelength of visible light scatter smaller wavelength ,blue is scattered the most.. **OR** (b) Red has the largest wavelength so scattered the least. (c) No atmosphere to scatter light.	1 2 1	