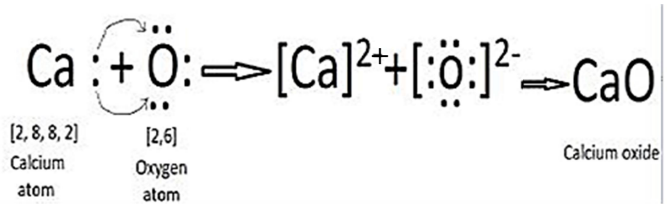
BANGALORE SAHODAYA QUESTION PAPER (2022-23)

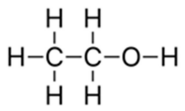
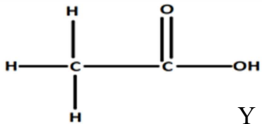
Science (Code – 086)

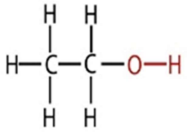
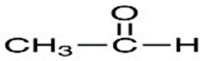
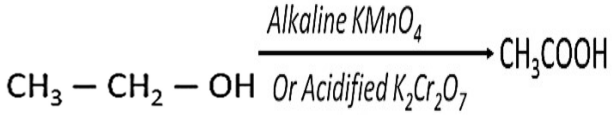
CLASS X –SET 2

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

Q.No	Questions	Marks
1.	d)	1
2.	c)	1
3.	b)	1
4.	b)	1
5.	d)	1
6.	c)	1
7.	c)	1
8.	b)	1
9.	b)	1
10.	c)	1
11.	b)	1
12.	b)	1
13.	b)	1
14.	c)	1
15.	c)	1
16.	d)	1
17.	b)	1
18.	b)	1
19.	d)	1
20.	a)	1
21.	a) i) Anode and Cathode labeling must be switched. b) for Hydrogen: bring a burning splinter near the mouth of the test tube, it burns with "pop" sound. for oxygen: bring a burning splinter near the mouth of the test tube, it burns brightly **OR** a) $BaCl_2(aq) + Na_2SO_4(aq) \rightarrow BaSO_4$ (ppt) + 2NaCl.(aq) b) $2AgCl(s) \xrightarrow{sunlight} 2\,Ag(s) + Cl_2(g)$	1 ½ ½ 1 1
22.	a. CNS- brain and spinal cord PNS- Cranial and spinal nerves b. CNS- Processing of messages PNS- Transmission of nerve impulses	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. Stomatal pores open due to increase in turgor pressure. Stomatal pores close due to loss of turgor pressure. b. chloroplast photosynthesis	½ ½ ½ ½
25.	Fig 13.6 (a), Page 222 NCERT (i) Current in the conductor (ii) Distance from the conductor OR Upwards / out of the paper Statement of Fleming's left hand rule.	1 ½ ½ 1 1
26.	a. Only <u>10% of the energy</u> is transferred from one trophic level to the next hence very less energy is available at the higher trophic levels b. High energy UV rays split molecular oxygen into free oxygen atoms. These free oxygen atoms combine with molecular oxygen to form ozone / $O_2 \xrightarrow{UV} O + O$ $O + O_2 \rightarrow O_3$ (Ozone)	1 1
27.	a) The interionic force of attraction in CaO is very strong when compared to magnesium chloride. b)  Electron dot structure of atoms – ½ each. ions ½ each	1 2
28.	a) Calcium oxychloride and $CaOCl_2$ b) $Ca(OH)_2 + Cl_2$ ----------> $CaOCl_2 + H_2O$ c) Bleaching powder is used in the paper industry to bleach wood pulp / distinfectant. d) It is used as an oxidising agent in the chemical industry	½ +½ 1 ½ ½
29.	a) A- Glomerulus Function- Ultrafiltration/ filtration of blood b) The structure is coiled to increase the surface area for selective reabsorption	½ ½

	c) Urine contains urea, uric acid, water and some salts **OR** a) A- lung capillaries They have one cell thick walls which helps in efficient exchange of gases / diffusion of gases. b) Through the pores present in the walls of capillaries some amount of plasma, proteins and blood cells escape into intercellular spaces in the tissues to form the tissue fluid or lymph c) Prevents mixing of oxygenated and deoxygenated blood	1 1 ½ 1 1 ½
30.	(a) Live, Neutral , Earth (b) Red, black , green (c) Live	1 1 1
31.	a) Fig 10.7 (d), Page 166 NCERT b) h_0 = 5cm, u = - 10cm, f=15cm $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$, $\frac{1}{15}=\frac{1}{-10}+\frac{1}{v}$ v= 6cm. virtual and erect **OR** a) benzene, Turpentine oil, kerosene, alcohol b) $n_{wg}=\frac{nw}{ng}=\frac{vg}{vw}=\frac{2\,x\,10^8}{2.25\,x10^8}=0.89$ $n_g=\frac{c}{v}=\frac{3\,x\,10^8}{2\,x\,10^8}=1.5$	1 ½ ½ 1 1 1 1
32.	a) hypermetropia b) elongation of the eyeball , increase in the focal length c) fig 11.3 (c) ,Page 190 NCERT	½ 1 1 ½
33.	a. biological magnification b. Pesticides get washed into the soil and water bodies from where they are absorbed by plants. Can be prevented by thoroughly washing fruits and vegetables before consumption. c. These chemicals are not degradable/cannot be broken down by enzymes	½ 1 ½ 1
34.	a)  X  Y b) $CH_3-COOH + CH_3-CH_2OH \xrightarrow{Con.H_2SO_4} CH_3-\underset{\underset{O}{\|}}{C}-O-CH_2-CH_3 + H_2O$ (i) (Ethanoic acid) (Ethanol) (Ester) (ii) Dehydrating agent	½ +½ 1 ½ ½

	(iii) Ethyl ethanoate c) The above experiment must be carried out in a water bath as both compounds are volatile. d) used cleaning agent/ salad dressing/preservative. (any relevant use) **OR** a. A  B.  b. A is ethanol and B is ethanal. c. A is alcohol / OH and B is aldehyde / CHO d.  e) (i) antifreeze agent / Tincture of iodine. (ii) used in cough syrups (any relevant use can be written)	1 1 ½ + ½ ½ + ½ ½ + ½ 1 ½ + ½
35.	a. Asexual reproduction/binary fission Example- Bacteria / amoeba / Leishmania / paramecium / euglena b. Advantage- Results in large number of offspring at a rapid rate Disadvantage- Less variation c. Due to errors in DNA replication d. Variations help the organism to adapt to changing ecological niche. **OR** a. Fertilisation takes place in the oviduct/fallopian tube Implantation takes place in the uterus b. i. The endometrial lining thickens and is richly supplied with blood to nourish the growing embryo ii. The lining slowly breaks and comes out through the vagina as blood and mucous. c. Causes irritation of the uterus Does not prevent transmission of sexually transmitted diseases d. To prevent adverse effect on the health of the mother/ to give time to mature mentally/ any other correct reason	½ ½ 1 1 1 1 ½ ½ 1 1 ½ ½ 1
36.	(a) Tungsten has high melting point and incandescence (b) Ammeter measures current which is the same in a series circuit..	1 1

	(c) 6Ω II 3Ω ,$R_p = 2\Omega$ $R_{eff} = 2 + 2 + 5 = 9\Omega$ $I = V/R = 12/9 = 4/3$ A / 1.33A / 3.56W $P = I^2R = 4/3 \times 4/3 \times 2 = 32/9$ W	1½ ½ 1
37.	a. both are oxidising agents b. $2Mg + SO_2$ ----------> $2MgO + S$ c. $SO_2 \longrightarrow$ acidic in nature. Blue litmus turns red in aq SO_2 / wet blue litmus turns red in SO_2 **OR** $MgO \longrightarrow$ basic in nature Red litmus turns blue in aq MgO.	1 1 1 ½ + ½ 1 ½ + ½
38.	a. Genes are located in chromosome/chromatin thread/ DNA in the nucleus of pea plant. (only 0.5 marks to be given if only nucleus is mentioned) b. Purple is the dominant trait and white flowers is the recessive trait. Reason- White flowers are produced when a non-efficient protein is coded by the allele 'a'. Therefore, white is the recessive trait. c. 1 (purple): 1 (white) **OR** c. Phenotype- all purple flowers Genotype- AA, Aa	1 1 1 1 ½ ½
39.	(a) Scattering of light. (b) No atmosphere to scatter light. (c)Smaller particles scatter smaller wavelengths and blue has a smaller wavelength. Hence it is scattered the most. **OR** Red has the longest wavelength. Hence it is scattered the least.	1 1 2

***** Good Luck*****