Model Question Biology – 3

Sankari Prasad Bhattacharyay
Ballygunj Govt. High School

Group – 'A'

Q1. Answer the following questions : (Alternatives are to be noted) 2 x 7 = 14

(a) State two differences between tracheid & trachea.

Ans.

		Tracheid	Trachea
1.	Structure	1. Presence of all types of thickening except bordered pits.	1. Presence of all types of thickening including bordered pits.
2.	Function	2. Major conducting xylem element of non–flowering plants.	2. Major conducting xylem elements of flowering plants.

(b) State two differences between the vascular bundle of Root and Stem.

Ans.

		Vascular bundle of stem	Vascular bundle of root
1.	Number	1. Many vesicular bundle arranged in a ring in dicot stem. Numbers vascular bundles are scattered in the ground tissue in monocot stem.	1. Number of vascular bundles and less i.e. 2 – 5 in number in Dicot root. The vascular bundles are 6 – 8 in number in monocot root.
2.	Types	2. Conjoint, collateral or bicollateral	2. Radial, closed

(c) State two differences between Penaeid & Non penaeid Prawn.

Ans.

	Peneid	Non–peneid
Habitat	1. Saline Water prawn	1. Fresh water prawn
Structure	2. The first three thoracic legs are chelate	2. The first two thoracic legs are chelate
Ex – *Penacus indicus*		Ex – *Macrobrachium rosen burgii*

OR Write the scientific names of two Pearl oysters.

Ans : 1. *Pinctada fucata*

2. *Pinctada atropurpurea*

(d) Write one symptom each of Flacherie & Muscardine of silkworm.

Ans : 1. Flacherie : (i) The body of the larva becomes soft and black.

2. Muscardiine : (i) The body of the larva becomes stiff and is covered with powdery white material.

(e) State the name of four abnormal composition of urine.

Ans : (i) Blood, (ii) Pus Cells, (iii) Protein (albumin) (iv) Ketone bodies.

OR State the role of skin in excretion.

Ans : (i) The skin excretes water, salts, uric acid etc. through sweat and irreversible respiration.

(ii) The skin excretes waxes, hydrocarbons, cholesterol etc. through sebum. Hence the skin is called accessory excretory organ.

(f) Write the now of four hormones secreted from placenta.

Ans : (1) Human chronic gonadotrophin (HCG) (2) Estrogen (3) Progesterone (4) Placental prolactic.

OR State the one function each of somatostation & Prostaglandin.

Ans : (1) Somatostaion – It inhibits the secretion of insulin and glucagon from the pancreatic islets.

(2) Prostaglandins – Inhibit gastric acid secretion and formation of peptic ulcer.

(g) State two difference between plasma and Serum.

Ans.

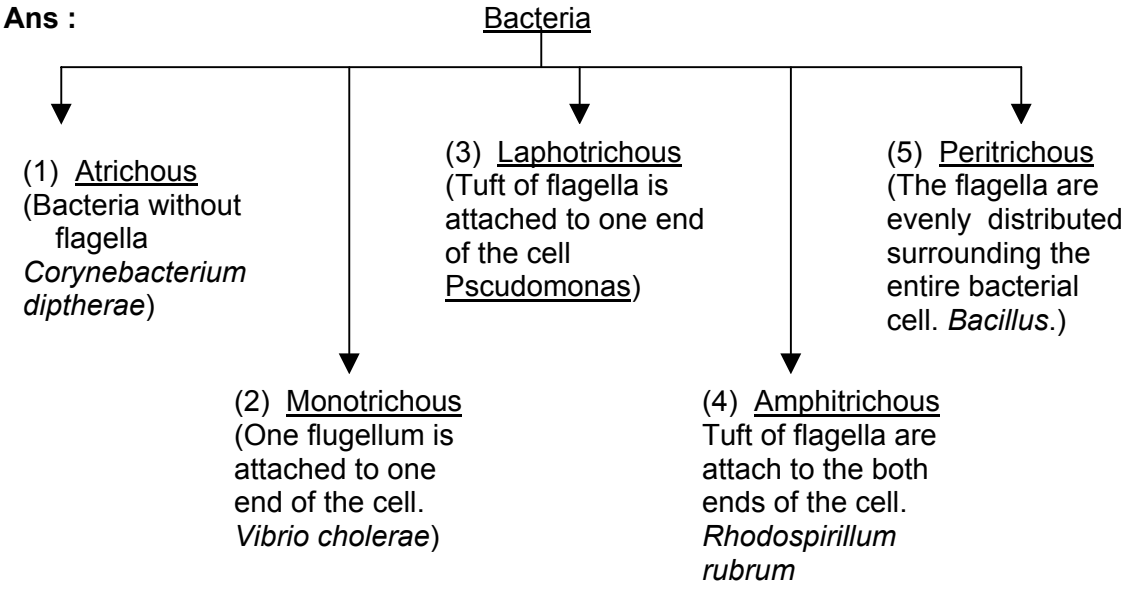
Plasma	Serum
1. Blood cells are present	1. Blood corpuscles are absent
2. Presence of thramboplustin	2. Absence of thromboplastin

Group – B

Answer the following questions : (Alternative are to be noted) 4 x 11 = 44

(a) Classify Bacteria on the basis of flagella.

Ans :



OR. Briefly describe the structure of "Bacteriophage".

Ans. The phage virus is tadpole or sperm shaped consisting of a cosahedral head, narrow neck, long tail and phase plate.

(a) Head : – The head is covered by two layers of protein known as capsid containing several units known as capsomeres. The head is hexagonal within the cavity of which double stranded DNA is present.

(b) Neck : – Very short tube like neck connects the head as tail and the neck is surrounded by a disc like circular structure known as collar.

(c) Tail : – The tube like tail contains a hollow core and the surrounding protein sheath called tail sheath.

(d) Base plate : – The base plate is attached at the end of the tail containing six tail fibres and also pin likes spikes are present at the lower surface of the baseplate arising from the corners of the hexagonal plate.

(b) Define "Infloresence". Discuss main three types of Inflorescene with example.

Ans :

Definition :– The process of arrangement of flowers on the floral axis of a flowering plant is known as influorescence.

Types of inflorescence :–

1. Cymose :– It is the type of inflorescence in which the growth of the main floral axis is delimited by an optical flower and the flowers are arrange laterally in basipetal succession and the lower flowers are formed later. E.g. Sundew.
2. Racemose :– The inflorescence in which the major inflorescence axis is never delimited by a apical flower i.e. the peduncle has an indefinite growth and the flowers appear in acropetal succession is known as racemose inflorescence. E.g. *Brassica campestris*.
3. Special condensed cymose :– The inflorescence is basically a cymose but very difficult to be recognized because of its condensed nature.
   As for example – Cyathium is such a special type of inflorescence in which the whole inflorescence is covered by a cup shaped green glandular involuese formed by the fervion of bracts. E.g. *Pedilanthus* (Rangelita)

OR, What type of stipules are found in China Rose (Jaba) and Rose. Write two difference between Tap root and Adventitious root.

Ans : China rose → Free lateral

Rose → Adnate.

	Points	Top root	Adventitious root
1.	Origin	1. Develops from the radicle	1. Develops from the plant organs except the radicle
2.	Root cap	2. It is protected by root cap	2. No such protective structure present.

(c) What do you mean by "Photoperiodism"? Classify plants on the basis of the length of Photoperiod.

Ans: Definition – The response of a particular flowering plant to the effective day length with respect to flowering is known as photoperiodism.

Types

On the basis of the duration of photoperiod, plants can be classified into three major categories as follows :–

1. Short day plant :– These plants require relatively short day light period (8–10 hours) for flowering. E.g. Tobacco.
2. Long day plant :– These plants require longer day light period (12 hours) for flowering. E.g. – Sugar beet.
3. Day neutral plants :– These plants do not exhibit any sensitivity to light period of flowering. E.g. Tomato.

OR, Discuss briefly the role of "Zibberellic Acid" during the growth of seedling.

Ans. 1. Induction of seed germination :– In presence of zibberellic acid starch is converted simple soluble sugar which provides nourishment to the developing embryo, as a result of which the germination process of seed is hastened.

2. Reduction of the inhibitory effect of light on stem growth :– It increases the process of protein breakdown, rather than its synthesis and there by promotes growth and inhibiting the effect of light on stem growth promotes growth like the dark grown seedling.

3. Elongation of internodes :– The important action of zibberellic acid that promote seedling growth, it even can induce growth in genetically dwarf plants like pea and maize.

(d)**OR** Write the name of the salivary glands of Guinea Pig. Name of the four paired arteries of descending aorta of Guinea Pig.

Ans: Salivary glands :–

1. Parotid 2. Mandibular 3. Sublingual 4. Infraorbital.

Paired arteries :–

1. Intercostal arteries. 2. Renal arteries
3. Genital arteries 4. Lumber arteries.

(e) State four main differences between the class chondrichthyes & osteichthyes.

Ans.

Chondrichthyes	Osteichthyes
1. Mouth is situated on the ventral	1. Mouth is terminal or sub–terminal
2. Endoskeleton is made up cartilage.	2. Endoskeleton is made up of bones.
3. Operculum is absent	3. Operculum is presence.

4. Swim balance is absent	4. Swim bladder is present.

OR, Write the names of the Phyla to which the following belong : (i) Planaria sp. (ii) Unio Sp. (iii) Neris sp. (iv) Sycon sp.

Ans.

Name of the animal	Phyla
1. *Planaria* sp.	1. Platyhelminthes
2. *Unio* sp.	2. Mollusca
3. *Nereis*	3. Annelida
4. *Syeon* sp.	4. Porifera.

(f) State two differences between the egg and Larva and Anophdes and Culex mosquito.

Ans.

Points	Anopheles	Culex
Egg	1. Eggs are floating Separately	1. Eggs are floating in a lemeh
	2. Each egg is boat like	2. Each egg is Cigar–shaped
Larva	3. The larva remains Parallel to the water Surface.	3. The head of the larva is suspended in a angular Fashion inside the water.

OR, Write about the mode of infection of Ascariasis.

Ans. Mode of infection of Ascariasis :–

1. Man is easily infected by this worm through contaminated vegetables and food by embronated eggs of Ascariasis.
2. Polluted type of drinking water containing infective stage of Ascariasis may cause infection.
3. Through contaminated soil with the infective stage of Ascariasis present the nails.
4. Occasionally through inspiration the infected stage of larvae can enter the pharyngeal region of man and ultimately enter the digestive tract.

(g) Write is glycogenesis ? Where it occurs ? State two differences between Active and Passive immunity.

Ans. • Glycogenesis :– The process of synthesis of glycogen from glucose is known as glycogenesis.

• Site – Muscle and Liver.

• Differences

Active immunity	Passive immunity
1. The antibody is produced in the body	1. The individual receives preformed anti–body either naturally or artificially.
2. It takes more time to develop long lasting.	2. It develops quickly but it is very short lasting.

OR, What is meant by Liver cirrhosis ? State two differences between T–Imphocyte & B–Lymphocyte.

Ans: • Liver cirrhosis :– It is a severe disease of liver leading to hypoglycaemia and inflammation and ultimately liver failure due to consumption of alcoholic drinks in high dose.

• Differences between T–lymphocyte and β–lymphocyte

T–lymphocyte	β–lymphocyte
1. It undergoes maturation in the thymus	1. It undergoes maturation in the bone marrow
2. It is responsible for the cell mediated immunity	2. It is responsible for humoral immunity.