



Chapter 7 :- Structural Organisation in Animals
Competency based question

I Source base Questions

The skin is smooth and slippery due to the presence of mucus. The skin is always maintained in a moist condition. The colour of dorsal side of body is generally olive green with dark irregular spots. On the ventral side the skin is uniformly pale yellow. The frog never drinks water but absorb it through the skin. Body of a frog is divisible into head and trunk. A neck and tail are absent. Above the mouth, a pair of nostrils is present. Eyes are bulged and covered by a nictitating membrane that protects them while in water. On either side of eyes, a membranous tympanum (ear) receives sound signals. The forelimbs and hind limbs help in swimming, walking, leaping and burrowing. The hind limbs end in five digits and they are larger and muscular than fore limbs that end in four digits. Feet have webbed digits that help in swimming. Frogs exhibit sexual dimorphism. Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the fore limbs which are absent in female frogs.

1. Why is the skin of frog moist?
 - a. To protect them from prey.
 - b. Help in cutaneous respiration.
 - c. Both of them.
 - d. None of them.
2. How many digits are there in the forelimb and hind limb of frog?
 - a. Four on both forelimb and hind limb
 - b. Five on both forelimb and hind limb
 - c. Four in forelimb and five in hind limb.
 - d. Five in forelimb and four in hind limb
3. A male frog can be identified from a female frog due to the presence of
 - a. Webbed feet and copulatory pad.
 - b. Copulatory pad and webbed feet.
 - c. Copulatory pad and vocal sac.
 - d. Vocal sac and webbed feet.
4. Which type of respiration is observed in frogs
 - a. Pulmonary respiration
 - b. Cutaneous respiration
 - c. Buccal respiration .
 - d. All of them.
5. Webbed feet are observed in
 - a. Fore arm.
 - b. Hind arm.
 - c. Both fore and hind arm.
 - d. None of them.

II Case based questions

The vascular system of frog is well-developed closed type. Frogs have a lymphatic system also. The blood vascular system involves heart, blood vessels and blood. The lymphatic system consists of lymph, lymph channels and lymph nodes. Heart is a muscular structure situated in the upper part of the body cavity. It has three chambers, two atria and one ventricle and is covered by a membrane called pericardium. A triangular structure called sinus venosus joins the right atrium. It receives blood through the major veins called vena cava. The ventricle opens into a sac - like conus arteriosus on the ventral side of the heart. The blood from the heart is carried to all parts of the body by the arteries (arterial system). The veins collect blood from different parts of body to the heart and form the venous system. Special venous connection between liver and intestine as well as the kidney and lower parts of the body are present in frogs. The former is called hepatic portal system and the latter is called renal portal system. The blood is composed of plasma and cells. The blood cells are RBC (red blood cells) or erythrocytes, WBC (white blood cells) or leucocytes and platelets. RBC's are nucleated and contain red coloured pigment namely haemoglobin. The lymph is different from blood. It lacks few proteins and RBCs. The blood carries nutrients, gases and water to the respective sites during the circulation. The circulation of blood is achieved by the pumping action of the muscular heart

1. Frogs heart when taken out of the body continues to beat for sometimes. Select the best options from the following –
 - i. Frog is poikilotherm.
 - ii. Frog does not have coronary circulation.
 - iii. Heart is myogenic in nature.
 - iv. Heart is auto excitable
 - a. Only iv
 - b. i & ii
 - c. iii & iv
 - d. Only iii
2. The triangular sac like structure which receives blood through the vena cava in frog is
 - a. Ventricle
 - b. Sinus venosus
 - c. Hepatic portal system
 - d. Conus arteriosus
3. Frogs differs from humans in possessing
 - a. Paired cerebral hemispheres
 - b. Hepatic portal system
 - c. Nucleated RBC
 - d. Thyroid as well as parathyroid
4. Choose the wrong statement regarding circulatory system in frog
 - a. Sinus venosus receives blood through major vein called vena cava.
 - b. The ventricles open into sac like conus arteriosus.
 - c. The erythrocytes are nucleated.
 - d. The special venous connection between liver and intestine called renal portal system is present.

Multiple choice questions

1. In frog kidney, the urea is eliminated by
 - a. Glomerular filtration
 - b. Tubular secretion
 - c. Both a & b
 - d. Tubular absorption
2. Select the route of sperms in male frogs
 - a. Testes – vasa efferentia – kidney – seminal vesicle – urino genital duct – cloaca.
 - b. Testes – vasa efferentia– Bidders canal - ureter – cloaca.
 - c. Testes – vasa efferentia – kidney– Bidders canal-urino genital duct – cloaca.
 - d. Testes– Bidders canal - kidney –vasa efferentia –urino genital duct – cloaca.
3. Which of the following is correct regarding respiration in adult frog
 - a. In water – skin, gills
 - b. On land – skin, buccal cavity
 - c. In water – skin, buccal cavity
 - d. On land – skin, lungs, gills.