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18/MHS01/243

MBBS

ANSWERS.

1. **Long term regulation of arterial mean pressure;** in the cardiovascular system blood flow is controlled by arteria blood pressure and in this way long term mean blood pressure is stabilized to regulate oxygen and carbon dioxide levels. Thereafter, the baroreflex would stabilize the instantenous pressure value of prevailing carotid pressure.
   This is done mainly by the kidneys. When blood pressure is changed, the nervous system mechanism adapts to the altered pressure. It loses sensitivity and does not change anymore. The kidneys regulate arterial pressure by two ways;
   By regulation of ECF volume; when the blood pressure increases , the kidneys excrete large amounts of water and sodium by pressure diuresis and pressure natriuresis which are the excretion of large amount of water in urine and excretion of large amount of sodium in urine respectively.
   By Renin-Angiotensin mechanism; this causes constriction of different arterioles as well as the stimulation of the adrenal cortex to secrete aldosterone.

2. (a) **pulmonary circulation**; this is the type of circulation that carries deoxygenated blood from the heart to the lungs to be re-saturated with oxygen before being dispersed into systemic circulation.

   (b) **Circle of willis**; this is a joining area of several arteries at the inferior side of the brain. At the circle of willis, the internal carotid arteries branch into smaller arteries that supply oxygenated blood to over 80% of the cerebrum.

   (c) **Splanchnic circulation**; this type of circulation consists of blood supply to the gastrointestinal tract,liver,spleen and

pancreas.It consists of two large capillary beds which are partially in series.

(d) **Coronary circulation**; this is the type of circulation of blood in the blood vessels that supply the heart muscle. In this circulation, coronary arteries oxygenated blood to the heart muscle and cardiac veins drain away the blood once it has been deoxygenated.

(e) **Cutaneous circulation**; this is the circulation and blood supply of the skin. The skin is not a very metabolically active tissue and has relatively small energy requirements so its blood supply is different to that of other tissues.

3. **Cardiovascular adjustment that occurs during exercise**; In order to maintain homeostasis in the cardiovascular system and provide adequate blood to tissues, blood flow must be redirected continually to the tissues as they become more active. In a very real sense, the cvs engages in resource allocation because there is not enough blood flow to distribute blood equally to all tissues simultenously. Aerobic and anaerobic fitness place larger demands on the heart. There will be a increase in the cardiac output of the heat and also redistribution of blood to the areas of low demand. This then causes the blood to flow in the direction of the active skeletal muscles. As body temperature increases so does blood supply to the skin.