

**Topic :-Locomotion & Movement**

- 1     **(a)**  
Haversian canals are found in long bones of mammals. These canals are interconnected by transverse canals called Volkmann's canals.
- 2     **(b)**  
Scapula is a large triangular flat bone situated in the dorsal part of the thorax between the second and the seventh ribs. The dorsal, flat, triangular body of scapula has a slightly elevated ridge called the, spine which projects as a flat, expended process called acromion.
- 3     **(a)**  
Pelvic girdle consists of two coxal bones. Each coxal bone is formed by the fusion of three bones- ilium, ischium and pubis. At the point of fusion of the above bones is a cavity called acetabulum to which the thigh bone articulates.
- 4     **(d)**  
Chondroitin sulphate is a jelly like substance that provides support and adhesiveness in cartilage, bone, skin and blood vessels
- 5     **(a)**  
The junction between a motor neuron and the sarcolemma of the muscle fiber is called the neuromuscular junction or motor-end plate. A neural signal reaching this junction (motor-end plate) releases a neurotransmitter (acetylcholine) which generates an action potential in the sarcolemma.
- 6     **(c)**  
Originally human skeleton consists of 270 bones, which gets fused to become 206 bones and out of which 6 bones are ear ossicles. The remaining 200 bones are distributed into axial and appendicular skeleton
- 7     **(d)**  
Volkmann's canals are found in long bones of mammals. These are transverse canals and connecting to Haversian canals.
- 8     **(b)**  
The epidemic bone softening 'Itai-Itai' was first seen in Japan.
- 9     **(c)**  
Sarcoplasmic reticulum.  
Each muscle fibre is lined by the plasma membrane called sarcolemma enclosing the sarcoplasm. Muscle fibre is a syncytium as the sarcoplasm contains many nuclei. The endoplasmic reticulum, *i.e.*, sarcoplasmic reticulum of the muscle fibres is the store house of calcium ions. A characteristic feature of muscle fibre is the presence of large number of

- parallely arranged filaments in the sarcoplasm called myofilaments or myofibrils
- 10 **(c)**  
A-Troponin, B-Myosin, C-Actin
- 11 **(d)**  
During muscle contraction the hydrolysis of ATP to ADP + Pi takes place in breaking and forming of cross bridges between the actin and myosin filaments
- 12 **(c)**  
The middle ear cavity in mammals characteristically contains a chain of three little bones called or **ear ossicles** extending between the tympanic membrane and the fenestra ovalis. These are called from outside as the **malleus** (hammer), **incus** (anvil) and **stapes** (stirrup), so named because of their characteristic shapes.
- 13 **(a)**  
Muscle contains a red coloured oxygen storing pigment called myoglobin. Myoglobin content is high in some of the muscles which gives them a reddish appearance. Such muscles are called the red fibres. These muscles, also contains plenty of mitochondria, which can utilise the large amount of oxygen stored in them for ATP production. These muscles therefore, can also be called aerobic muscles
- 14 **(b)**  
Most of the bones in birds are pneumatic and filled with air sac instead of bone marrow.
- 15 **(c)**  
The junction between a motor neuron and the sarcolemma of the muscle fibre is called the neuromuscular junction or motor end plate. A neural signal reaching this junction releases a neurotransmitter, acetylcholine which generates an action potential in the sarcolemma
- 16 **(c)**  
Jugal is a narrow wavy bone. It connects zygomatic processes of squamosal and maxilla forming 'zygomatic arch'.
- 17 **(a)**  
Animals and plants exhibit a wide range of movements. Streaming of protoplasm in the unicellular organisms like *Amoeba* is a simple form of movement
- 18 **(b)**  
Sternum -1  
Pelvis -3  
Ribs -24  
Face -14
- 19 **(d)**  
Chemical ions responsible for muscle contraction are  $Ca^{2+}$  and  $Mg^{2+}$ .
- 20 **(a)**  
In resting state, troponin binds to tropomyosin and masks the binding sites,  $Ca^{2+}$  binds to the troponin and frees the binding sites of troponin so that contraction can proceed

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	B	A	D	A	C	D	B	C	C

<b>Q.</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>A.</b>	<b>D</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>D</b>	<b>A</b>

**PE**