

Skeletal System Practice Quiz and Exercises ANSWERS

1) Give the meaning of the following terms (4 marks)

- a) Prone
- b) Medial
- c) Posterior
- d) Ipsilateral

- a) Lying face down
- b) Nearer the midline
- c) Nearer the back
- d) On the same side

2) Describe the position of the sagittal plane (1 mark)

Divides the body from left to right

3) Give 4 functions of the skeleton (4 marks)

Framework for the body
Attachment for muscles and tendons
Permits movement (joints)
Forms boundaries (skull)
Red bone marrow forms blood cells
Reservoir for minerals

4) What are the four components of an osteon? (4 marks)

Lamella = Extracellular matrix containing minerals and collagen fibres. Give bone strength
Lacunae = Space between lamellae that contain mature bone cells called osteocytes
Canaliculi – Network of little canals that provide a route for osteocytes to receive nutrients and remove waste
Central canal = contains blood vessels and nerves

5) Describe the structure of spongy bone (2 marks)

Irregular lattice of trabeculae
Red bone marrow

6) What is the name of the cells that form new bone? (1 mark)

Osteoblasts

7) What is the name of the special place in a bone around which growth occurs? (1 mark)

Epiphyseal plate

8) What does the term appositional growth mean? (1 mark)

Bones increase in diameter and thickness

9) Give 2 ways in which parathyroid hormone increase blood calcium levels (2 marks)

Increases osteoclast activity

Increases vitamin D

Increases kidney retention of calcium

10) What is the job of calcitonin? (1 mark)

Decrease blood calcium when it is too high.

It inhibits osteoclasts and speeds up bone intake and deposition of calcium

11) Name the 5 parts of the axial skeleton (5 marks)

Skull

Inner ear ossicles

Throat hyoid bone

Chest (thoracic cage)

Vertebral column.

12) Name the 3 types of bone and give an example of each (6 marks)

Long - Clavicle, humerus, radius, ulna, femur, tibia, fibula, metacarpals, metatarsals, phalanges

Short - carpals and tarsals

Irregular – Vertebrae, Sacrum, coccyx, Temporal, sphenoid, ethmoid, zygomatic, maxilla, mandible, palatine, inferior nasal concha, and hyoid

Flat - Skull bones, Scapula, Hip bone, Sternum, Ribs

Sesamoid - Patella, pisiform (carpal bone), Sesamoid bones of the 1st metatarsal of the foot

13) What is the function of the fontanelles? (1 mark)

Allow the baby's head through the birth canal

14) How many intervertebral disc are there? (1 mark)

24

15) What is the medical name for the bone in the upper arm? (1 mark)

Humerus

16) What is the medical name for the bigger bone in the lower leg? (1 mark)

Tibia

17) Where are the phalanges located? (1 mark)

Fingers and toes

18) What does the term insertion mean? (1 mark)

The point of insertion is the point of attachment to the bone the muscle moves

19) What is suture and where would you find one (2 marks)

Fixed joint in the skull

20) Give an example of a ball and socket joint (1 mark)

Hip and shoulder

21) Where would you find a pivot joint (1 mark)

Radioulnar joint in the arm

22) What is the main function of bursa? (1 mark)

Cushion movement of these tissue against one another

23) What is the term used to describe moving a body part in a circle? (1 mark)

Circumduction

24) What does the term dorsiflexion mean? (1 mark)

Bending the foot up

25) What kind of structures appear white on an x-ray? (1 mark)

Bones, tumours, lungs with pneumonia

26) What does the term pathological fracture mean? (1 mark)

Fracture because bone is weakened by disease

27) Why do women become more prone to osteoporosis after the menopause (1 mark)

Reduction in oestrogen – Oestrogen help control osteoclast activity

28) Suggest 3 risk factors for osteoporosis (3 marks)

Smoking
High alcohol consumption
Poor diet
Sedentary lifestyle
Family history
Long term steroid use
Endocrine problems e.g. inability to produce oestrogen
Corticosteroid and some anti-epileptic use

29) What is rickets? (4 marks)

Softening of bones due to failed mineralization in the bone matrix

30) Give 3 symptoms of hypercalcaemia (3 marks)

Muscle weakness
Lethargy
Anorexia
Nausea
Polyuria
Irregular heartbeat

31) What is the difference between a sprain and a strain? (1 mark)

Sprain: Trauma forcing a joint beyond this range, stretching/tearing ligament(s)
A strain is a stretching or tearing of muscle or tendon. People commonly call strains "pulled" muscles.

32) What is the main cause of scoliosis? (1 mark)

Everyday imbalance (e.g. Carrying rucksack on one shoulder)

33) Give 3 differences between osteoarthritis and rheumatoid arthritis that would allow you to tell the difference between the 2 conditions (2 marks)

Wear and tear v's autoimmune
Articular cartilage v's synovial membrane
Older people v's 30-50
Asymmetric v's Symmetrical
Non-inflammatory v's Inflammatory
No additional symptoms v's Additional symptoms

RA – Additional Sx
Eye problems – pain in eyes or dry eyes
Subcutaneous nodules

Neurological complications, especially due to erosion of the C2 odontoid peg, or cruciate ligament supporting this part of the neck

General malaise

Atlantoaxial subluxation and compression of the spinal cord - quadriplegia.

Kidney problems

34) What is the main presenting symptom in gout? (1 mark)

Joint becomes red, swollen, very painful and shiny

35) Suggest 2 conditions that may be underlying in a gout sufferer (2 marks)

Alcohol abuse

Obesity

Artherosclerosis

Hypertension (High B.P.)

36) What is ankylosing spondylitis? (1 mark)

Chronic inflammation of spine and sacroiliac joints, often leading to spinal fusion (ankyloses) and reduced movement.