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BSc. MEDICAL SCIENCES FORMATIVE ASSESSMENT 1: 2016/2017

BAHS 235: MUSCULOSKELETAL SYSTEM

INSTRUCTION: ANSWER ALL QUESTIONS (i.e. A total of 85 questions)

TIME ALLOWED: 120 MINUTES

SECTION A: MCQs

Select the SINGLE BEST RESPONSE to the stem or question from options (A-E) in questions 1-80. SHADE YOUR ANSWER ON THE SCANNABLE SHEET PROVIDED.

1. Concerning bones, which of the following best suits the definition for a facet?
 - A. Expanded end for articulation
 - B. An opening in a bone
 - C. A deficiency in the margin of a bone
 - D. A small flat area for articulation
 - E. A depression on a bone with more height than width

2. An example of a rounded elevation on bone surface that is often associated with the shaft region is most likely to be a:
 - A. Tubercle
 - B. Trochanter
 - C. Tuberosity
 - D. Malleolus
 - E. Protuberance

3. All the following are examples of linear elevations of bones EXCEPT:
 - A. Ridge
 - B. Spine
 - C. Line
 - D. Crest
 - E. None of the above

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4. The greater sciatic notch of the hip bone is a typical example of this type of surface marking of bones:
- A. Small flat area for articulation
 - B. Large flat area for non-articulation
 - C. Rounded elevation
 - D. Sharp elevation
 - E. Depression
5. In a nulliparous woman, the nipple is most likely to be located in which intercostal space?
- A. 2nd
 - B. 3rd
 - C. 4th
 - D. 5th
 - E. 6th
6. The most important factor in the stability of the shoulder joint is:
- A. Glenoid labrum
 - B. Transverse gleno-humeral ligament
 - C. The joint capsule
 - D. Tendons of the short shoulder muscles
 - E. The joint capsule
7. A 26-year old man fell on an outstretched hand and a radiological study indicates anterior dislocation of a carpal bone of the proximal row. Which of these bones is most likely dislocated?
- A. Triquetrum
 - B. Scaphoid
 - C. Lunate
 - D. Capitate
 - E. Pisiform
8. Which of the following structures is at risk of being compressed in carpal tunnel syndrome?
- A. Radial nerve
 - B. Median nerve
 - C. Radial artery
 - D. Ulnar nerve
 - E. Ulnar artery

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9. A 45-year old lady had chest tube inserted to drain fluid in the right pleural cavity. On the second day after the procedure, she complained of weakness in reaching out and pushing forwards with the right upper limb. Examination revealed prominence of the medial border of the scapular when she pushes against the wall. Which of these nerves might have been injured in the procedure?
- A. Intercostal nerves
 - B. Thoracodorsal nerve
 - C. Median nerve
 - D. Axillary nerve
 - E. Long thoracic nerve
10. A 36-year old man sustained a gunshot wound to his left axilla and bleeding profusely from the site. Further examination revealed his left axillary artery is severed at the first part but radial arterial pulse can still be palpated at the left wrist. Which of these best explains why the radial pulse can still be felt?
- A. The ends of the artery elongate to unite with each other
 - B. There was growth of new a blood vessel
 - C. The artery is not completely severed
 - D. Anastomosis between branches of the thyrocervical trunk and branches of subscapular artery maintain blood flow distal to the injury.
 - E. Anastomosis between branches from the second and the third parts of the axillary artery will maintain blood flow
11. A 35-year old woman was seen at the clinic with wasting of the thenar muscles and loss of sensation over the palmar surface of the radial three-and-half of the hand and digits. Further evaluation revealed she has carpal tunnel syndrome. Compression of which of these nerves is responsible for these condition?
- A. Median and Ulnar nerves
 - B. Ulnar nerve
 - C. Radial nerve
 - D. Median nerve
 - E. Median and Radial nerves

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12. 32 year man sustained laceration in his right palm severing the superficial palmar arterial arch. In order to control the bleeding and to obtain a bloodless field to repair his wounds, which artery/ arteries and at which location, should be occluded (compressed)?
- A. Radial artery in the forearm
 - B. Ulnar artery in the forearm
 - C. Ulnar artery in the palm
 - D. Brachial artery above the right elbow
 - E. Radial artery in the palm
13. The long thoracic nerve (nerve to serratus anterior) comes from this part of the brachial plexus:-
- A. Medial Cord
 - B. Posterior Cord
 - C. Roots
 - D. Trunks
 - E. Divisions
14. One of the tendons of the following muscles is **not** part of the rotator cuff
- A. Teres minor
 - B. Supraspinatus
 - C. Subscapularis
 - D. Infraspinatus
 - E. Teres major
15. The axillary tail of the breast is an extension of the....
- A. Superiolateral quadrant
 - B. Inferiolateral quadrant
 - C. Superiomedial quadrant
 - D. Inferomedial quadrant
 - E. Nipple
16. Which of the following is the longest and strongest bone in the human body?
- A. Spinal column
 - B. Humerus
 - C. Tibia
 - D. Femur
 - E. Radius

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17. Which of the terms below best describes the part of a structure that is closest to the skin or surface?

- A. Deep
- B. Inferior
- C. Subcutaneous
- D. Superior
- E. Superficial

18. In the anatomical position, movement of the upper limb away from the median plane of the body is referred to as:

- A. Abduction
- B. Adduction
- C. Lateral rotation
- D. Pronation
- E. Supination

19. Rotation of the forearm such that the palm faces posterior in the anatomical position is described as:

- A. Circumduction
- B. Lateral rotation
- C. Medial rotation
- D. Pronation
- E. Supination

20. Which of the following best describes the movement at the ankle when turning the foot?

- A. Dorsiflexion
- B. Eversion
- C. Inversion
- D. Plantarflexion
- E. None of the above

21. The receptors that respond to stretch in muscles are called:

- A. Free nerve endings
- B. End bulb of Krause
- C. Muscle spindles
- D. Pacinian corpuscles
- E. Tendon organs

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22. The receptors that respond to tension in muscles are called:

- A. Tendon organs
- B. Pacinian corpuscles
- C. Muscle spindles
- D. Maculae
- E. Free nerve endings

23. A student is asked to list the functions of the musculoskeletal system in humans. Which of the following should he/she indicate as the primary function?

- A. Increase immune response
- B. Balance and locomotion
- C. Production of blood cells
- D. Storage of minerals
- E. Protection of organs

24. Which of the underlisted cells is responsible for the resorption of bone?

- A. Chondroclast
- B. Osteoblast
- C. Osteoclast
- D. Osteocyte
- E. Osteoprogenitor

25. Which component of bone tissue is responsible for its ability to undergo mineralization (calcification)?

- A. Specific proteoglycans
- B. Specific structural glycoproteins (e.g. osteocalcin)
- C. Type I collagen fibres
- D. Type II collagen fibres
- E. Type III collagen fibres

26. Which of the following statements is **not true** of endochondral ossification?

- A. Osteoblasts differentiate directly from mesenchymal cells
- B. Osteoprogenitor cells form bone collar
- C. Chondrocytes enlarge, degenerate and leave large lacunae
- D. Osteoblasts lay new bone on cartilage template
- E. Osteoclasts resorb bony matrix

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27. Which is/are the reason(s) for the faster growth in height of males at puberty compared with females of similar age?

- A. Post-pubertal female hormone estradiol slows down synthesis of glycosaminoglycans in cartilage
- B. Post-pubertal male hormone testosterone promotes synthesis of glycosaminoglycans in cartilage
- C. There is drastic reduction of chondrocytes in the postpubertal female
- D. A and B
- E. A and C

28. Which is the reason why cartilage cannot grow very thick? Because:

- A. Chondrocytes do not divide much
- B. It is avascular thus oxygen and nutrients must diffuse through the water of hydration in the matrix which is inefficient
- C. Some of the cells are not well nourished
- D. All of the above
- E. None of the above

29. Which is the reason why fibrocartilage undertakes only interstitial growth? Because:

- A. Chondrogenic cells are absent
- B. Isogenous cells are internally located
- C. Isogenous groups alternate with vascular fibrous tissue
- D. It lacks a perichondrium
- E. Its inner part is vascular

30. From which of the following would bleeding occur on account of damaged blood vessels when skeletal muscle is cut?

- A. Endomysium
- B. Epimysium
- C. Perimysium
- D. All of the above
- E. Only B and C

31. Which band in the registered arrangement of myofilaments in striated muscle contains only actin filaments?
- A. A-band
 - B. H-band
 - C. I-band
 - D. H-band
 - E. M-band
32. Which muscle cell is capable of hyperplasia as well as hypertrophy?
- A. Cardiac muscle
 - B. Skeletal muscle
 - C. Smooth muscle
 - D. Only smooth muscle in the uterus
 - E. Smooth muscle in the heart
33. Muscular dystrophy is characterized by weakness and wasting of skeletal muscle. What is/are the possible cause(s) of this condition?
- A. Absence of external lamina
 - B. Incompetent sets of myofilaments
 - C. Muscle cells die and are replaced by connective tissue
 - D. Defective link protein involved in muscular function
 - E. Lack of neuromuscular junction
34. Which is the commonest fixative used in routine histological processing of tissues?
- A. Alcohol
 - B. Formalin
 - C. Formic acid
 - D. Gluteraldehyde
 - E. Xylene
35. Which of the following is the reason for staining tissues during histological processing?
- A. To create contrast for distinguishing components
 - B. To preserve normal organizational pattern of components
 - C. To prevent digestion by enzymes (autolysis)
 - D. To prevent post mortem decomposition
 - E. To separate cell membranes from cytoplasm

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36. Some microorganisms are able to invade connective tissue rapidly because they synthesize which of the following enzymes?

- A. Carboxypeptidase
- B. Hyaluronidase
- C. Lipase
- D. Protease
- E. Ribonuclease

37. The following statements are true of connective tissue EXCEPT:

- A. A large intercellular space
- B. Amorphous intercellular substance
- C. Different cell types
- D. Many multinucleated cells
- E. Tissue fluid

38. A characteristic of pseudostratified columnar epithelium with stereocilia is that all cells:

- A. Are connected by gap junctions
- B. Are in contact with their basement membrane
- C. Have a free surface
- D. Have highly folded basement membranes
- E. Have their nuclei at the same level

39. Which is the principal function of a stratified squamous epithelium?

- A. Absorption
- B. Excretion
- C. Protection
- D. Secretion
- E. Support

40. Which of the following is classified as a compound gland?

- A. One with a duct that drains several acini
- B. One with a single duct that drains more than one secretory unit
- C. One which has a branching duct system
- D. One which has two ducts that drain acini
- E. One which has more than two ducts that drain several acini

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41. Which connective tissue cell exhibits metachromasia?
- A. Adipocyte
 - B. Basophil
 - C. Macrophage
 - D. Mast cell
 - E. Monocyte
42. If a cancer patient is given an anti-mitotic drug as part of the clinical management, which of the features of the patient's epithelial tissues will be most directly affected?
- A. Integrity of the basement membranes
 - B. Integrins (transmembrane proteins)
 - C. Polarity of the cells
 - D. Specialised contacts
 - E. Regenerative capacity
43. A connexon is the unit of which type of specialized intercellular contact between epithelial cells?
- A. Adherent junction
 - B. Desmosomal junction
 - C. Gap junction
 - D. Intermediate junction
 - E. Occluding Junction
44. A closing door of a bedroom smashed the fingers of six-year old Kofi who suffered a fracture in two phalanges. Which one of the following statements is **true** concerning the healing of the fractured bones?
- A. Bone repair will occur directly from mesenchymal tissue
 - B. Osteoclasts will not play any role in bone repair
 - C. The first bone produced during repair would be the woven type
 - D. There would be no bleeding because bone tissue is avascular
 - E. There would be a bony collar to breach the broken ends of the phalanx first

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45. Which two key instruments whose inventions were central to the development of histology as an anatomical discipline?
- A. Dyes or stains
 - B. Microscope
 - C. Microtome
 - D. A and B
 - E. B and C
46. In humans, the stem cell which is capable of giving rise to all cell types during the formation of the embryo is described as being:
- A. Multipotent
 - B. Pluripotent
 - C. Precursor
 - D. Progenitor
 - E. Totipotent
47. Why is it necessary to clear tissue blocks before embedding in wax during tissue processing?
- A. Tissue blocks must be clearly visible in embedding medium
 - B. Tissue blocks are easier to embed after clearing
 - C. To remove dehydrating agent
 - D. To put tissue in a solvent that is miscible with molten wax
 - E. To prevent further shrinkage of tissue blocks
48. Which of the following statements concerning the circulatory system is **incorrect**?
- A. It consists of cardiovascular and lymphatic parts
 - B. It is necessary for maintaining the constancy of the internal environment of the body
 - C. Its components are lined by flat epithelial cells
 - D. All the fluid from peripheral tissues is conveyed in lymphatics
 - E. Red blood cells are carried in the cardiovascular system only
49. All the following statements concerning the cardiovascular system are correct, **except**:
- A. It consists of the heart and blood vessels only
 - B. It disperses heat
 - C. It conveys nutrients to the tissues
 - D. It is important in keeping the tissues turgid
 - E. Impeded flow of blood from the lower limbs is unlikely to cause oedema of the feet

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