

Histology

1- What is the approximate diameter of a cardiac muscle fiber?

- a) 5 μm
- b) 10 μm
- c) 15 μm
- d) 20 μm

2- What is the approximate length of a cardiac muscle fiber?

- a) 50-75 μm
- b) 85-100 μm
- c) 110-125 μm
- d) 130-150 μm

3- What is the shape of cardiac muscle fibers?

- a) Spindle-shaped
- b) Cylindrical branching
- c) Triangular

4- What is the nature of the cardiac muscle sarcolemma?

- a) Thick
- b) Very thin
- c) Absent
- d) Highly folded

5- Which pigment accumulates in cardiac muscle with age, leading to brown atrophy of the heart?

- a) Melanin
- b) Lipofuscin
- c) Hemoglobin
- d) Myoglobin

6- How many nuclei are present in a typical cardiac muscle fiber?

- A) Multiple
- B) Single, central
- C) Peripheral, multiple

7- What is the embryological origin of cardiac muscle?

- a) Ectoderm
- b) Endoderm
- c) Mesoderm

8- What type of junctions form intercalated discs?

- A) Tight junctions and hemidesmosomes
- B) Hemidesmosomes and adherens junctions
- C) Desmosomes and gap junctions

9- Where are T tubules located in cardiac muscle fibers?

- A) at the A-I junction
- B) At the H Zone
- C) at Z line

10) How many nuclei do Purkinje fibers typically have?

- a) Single, central
- b) Multiple, central
- c) One or two, eccentric
- d) No nucleus

11) What is the site of the dyad in cardiac muscle?

- a) I-A junction
- b) Z line
- c) I Band
- d) A Band

12) Which one is a light microscopic feature of Purkinje muscle fibers?

- a) Striated ms fibers
- b) Small pale fibers
- c) Pale vacuolated sarcoplasm
- d) Intercalated disc

13) Which part of the intercalated disc provides ionic continuity?

- a) Fascia adherens
- b) Desmosomes
- c) Sarcoplasmic reticulum
- d) Gap junction

14) Which one is NOT a feature of cardiac muscles?

- a) Gap junction
- b) Branching
- c) Triad tubular system
- d) Intercalated discs

Histology answers

1- C	5- B	9- C	13- D
2- B	6- B	10- C	14- C
3- B	7- C	11- B	
4- B	8- C	12- C	

Anatomy

1- Which of the following structures is found in the superior mediastinum?

- A) Heart and pericardium
- B) Esophagus
- C) Remnants of thymus
- D) Azygos veins

2- The mediastinum is divided into superior and inferior parts by an imaginary line drawn between which structures?

- A) Sternal angle and T4 vertebra
- B) Sternal notch and T1 vertebra
- C) Diaphragm and T8 vertebra
- D) Manubrium and T2 vertebra

3- Which structure is located in the anterior mediastinum?

- A) Trachea
- B) Heart
- C) Remnants of thymus
- D) Descending aorta

4- The posterior mediastinum contains all of the following EXCEPT:

- A) Descending aorta
- B) Esophagus
- C) Azygos veins
- D) Pulmonary trunk

5- The middle mediastinum includes which of the following structures?

- A) Arch of aorta
- B) Heart and pericardium
- C) Descending aorta
- D) Remnants of thymus

6- Which nerve is found in the middle mediastinum?

- A) Vagus nerve
- B) Phrenic nerve
- C) Sympathetic trunk

7- Mediastinal syndrome may affect the superior vena cava, leading to which of the following symptoms?

- A) Hoarseness of voice
- B) Collapse of lung lobe
- C) Congestion of upper limbs, head, and neck
- D) Dysphagia

8- Which of the following structures passes through both the superior and posterior mediastinum?

- A) Trachea
- B) Esophagus
- C) Heart
- D) Thymus

9- Which layer of the pericardium is adherent to the heart?

- A) Fibrous pericardium
- B) Parietal layer of the serous pericardium
- C) Visceral layer of the serous pericardium

10- The parietal layer of the serous pericardium is sensitive to pain because it is supplied by:

- A) Vagus nerve
- B) Phrenic nerves
- C) Sympathetic trunk

11- The pericardial cavity is located between which two layers?

- A) Fibrous and serous pericardium
- B) Parietal and visceral layers of the serous pericardium
- C) Visceral layer and myocardium

12- The oblique sinus is located behind which chamber of the heart?

- A) Right atrium
- B) Right ventricle
- C) Left atrium
- D) Left ventricle

13- Pericardial effusion is characterized by:

- A) Inflammation of the myocardium
- B) Accumulation of excess fluid in the pericardial cavity
- C) Enlargement of the left ventricle
- D) Obstruction of the coronary arteries

14- Drainage of pericardial effusion is typically performed by inserting a needle:

- A) To the right of the sternum at the 2nd intercostal space
- B) Within 1 cm to the left of the sternum between the 4th and 6th costal cartilages
- C) At the apex of the heart
- D) At the midclavicular line at the 5th intercostal space

15- Which border of the heart is mainly formed by the right atrium?

- A) Superior
- B) Inferior
- C) Right
- D) Left

16- The apex of the heart is formed by which chamber?

- A) Right atrium
- B) Left atrium
- C) Right ventricle
- D) Left ventricle

17- Which groove separates the atria from the ventricles

- A) Anterior interventricular groove
- B) Posterior interventricular groove
- C) Atrioventricular (coronary) groove

18- The anterior interventricular groove separates which chambers?

- A) Right and left atria
- B) Right and left ventricles
- C) Right atrium and right ventricle
- D) Left atrium and left ventricle

19- The apex of the heart is directed:

- A) Upward and to the right
- B) Downward, forward, and to the left
- C) Backward and to the right
- D) Directly downward

20- The rough part of the right atrium is characterized by the presence of:

- A) Pectinate muscles
- B) Trabeculae carneae
- C) Papillary muscles
- D) Chordae tendineae

21- The interventricular septum is convex towards:

- A) Right ventricle
- B) Left ventricle
- C) Right atrium
- D) Left atrium

22- Which structure separates the smooth and rough parts of the right atrium?

- A) Coronary sinus
- B) Crista terminalis
- C) Chordae tendineae
- D) Interatrial septum

23- Which chamber contains the moderator band (septomarginal trabecula)?

- A) Right atrium
- B) Left atrium
- C) Right ventricle
- D) Left ventricle

24- The mitral valve guards the opening between:

- A) Right atrium and right ventricle
- B) Left atrium and left ventricle
- C) Right ventricle and pulmonary trunk
- D) Left ventricle and aorta

25- Which valve is located between the right atrium and right ventricle?

- A) Mitral
- B) Tricuspid
- C) Aortic
- D) Pulmonary

26- The mitral valve is characterized by which of the following?

- A) 3 cusps
- B) 2 cusps
- C) 4 cusps

27- Which of the following valves is located between the left ventricle and aorta?

- A) Pulmonary
- B) Mitral
- C) Aortic
- D) Tricuspid

28- Which valve has cusps named anterior, right posterior, and left posterior?

- A) Tricuspid
- B) Mitral
- C) Pulmonary
- D) Aortic

29- Chordae tendineae are associated with which valves?

- A) Aortic and Pulmonary
- B) Mitral and Tricuspid
- C) Mitral and Aortic
- D) Pulmonary and Tricuspid

30- Which valve prevents backflow from the pulmonary trunk into the right ventricle?

- A) Mitral
- B) Aortic
- C) Tricuspid
- D) Pulmonary

31- The mitral valve is best auscultated at which location?

- A) Right 2nd intercostal space
- B) Left 2nd intercostal space
- C) Left 5th intercostal space at midclavicular line
- D) 4th intercostal space at midline

32- The right coronary artery originates from which sinus?

- A) Left posterior sinus
- B) Anterior sinus
- C) Left anterior sinus

33- The circumflex artery is a branch of which coronary artery?

- A) Right coronary artery
- B) Left coronary artery
- C) Anterior interventricular artery
- D) Posterior interventricular artery

34- Which coronary artery supplies the SA node in 65% of individuals?

- A) Right coronary artery
- B) Left coronary artery
- C) Circumflex artery
- D) Anterior interventricular artery

35- The coronary sinus drains into which chamber of the heart?

- A) Right atrium
- B) Left atrium
- C) Right ventricle
- D) Left ventricle

36- Which vein accompanies the anterior interventricular artery?

- A) Middle cardiac vein
- B) Small cardiac vein
- C) Great cardiac vein
- D) Coronary sinus

37- The surface anatomy of the mitral valve is located at which site?

- A) Left 2nd costal cartilage
- B) Left 4th costal cartilage
- C) Left 5th intercostal space at midclavicular line
- D) 4th intercostal space at midline

38- The aortic valve is best auscultated at which location?

- A) Right 2nd intercostal space
- B) Left 2nd intercostal space
- C) Left 5th intercostal space at midclavicular line
- D) 4th intercostal space at midline

39- Which of the following correctly matches a valve with its surface anatomy?

- A) Tricuspid — Left 2nd intercostal space
- B) Mitral — Left 4th costal cartilage
- C) Pulmonary — Right 2nd intercostal space
- D) Aortic — Left 5th intercostal space

40- The ascending aorta begins at which location?

- A) Left 2nd intercostal space
- B) Left 3rd intercostal space behind the left margin of the sternum
- C) Right 2nd intercostal space
- D) Right 3rd intercostal space behind the right margin of the sternum

41- Which of the following is a branch of the ascending aorta?

- A) Brachiocephalic artery
- B) Left subclavian artery
- C) Right coronary artery
- D) Left common carotid artery

42- The arch of the aorta ends at which anatomical landmark?

- A) Left 2nd costal cartilage
- B) Right 2nd costal cartilage
- C) Left side of T4 vertebra (lower border)
- D) Right side of T4 vertebra (upper border)

43- Which vessel is located to the right of the ascending aorta?

- A) Left atrium
- B) Right atrium and SVC
- C) Pulmonary trunk
- D) Left pulmonary artery

44- The ligamentum arteriosum connects which two structures?

- A) Arch of aorta and right pulmonary artery
- B) Arch of aorta and left pulmonary artery
- C) Right atrium and left atrium
- D) Right ventricle and pulmonary trunk

1	B	21	A	41	C
2	A	22	B	42	C
3	C	23	C	43	B
4	D	24	B	44	B
5	B	25	B		
6	B	26	B		
7	C	27	C		
8	B	28	D		
9	C	29	B		
10	B	30	D		
11	B	31	C		
12	C	32	B		
13	B	33	B		
14	B	34	A		
15	C	35	A		
16	D	36	C		
17	C	37	B		
18	B	38	A		
19	B	39	B		
20	A	40	B		

Physiology & Biochemistry MCQs for Mid

1. The fraction of the EDV that is ejected with each beat

- a) stroke volume
- b) Cardiac Index
- c) EF
- d) Cardiac output

2. Exercise increases COP

- a) 100%
- b) 300%
- c) 30%
- d) 50%

3. standing from lying position makes COP

- a) Unchanged
- b) Increased
- c) Decreased
- d) zero

4. Decreased ventricular compliance will decrease preload

- a) True
- b) false

5. difference between cardiac output pumped by the heart under ordinary circumstances & its maximum capacity for pumping blood

- a) cardiac output
- b) Cardiac Index
- c) Cardiac Reserve
- d) None of the above

6. ability of the cardiac muscle to contract to pump blood

- a) Excitability
- b) Action potential
- c) Contractility
- d) none of the above

7. all are positive Inotropic Factors except

- a) Glucagon
- b) Digitalis
- c) Xanthines
- d) Anesthetics

8. Rate of conduction in Purkinje fiber

- a) 1 m/sec
- b) 0.05 m/sec
- c) 4-5 m/sec
- d) 50 m/sec

9. ability of heart to beat regular impulses independent of any nervous connection

- a) Conductivity
- b) Excitability
- c) Automaticity
- d) Contractility

10. ability of cardiac muscle to transmit cardiac excitation wave

- a) Automaticity
- b) Excitability
- c) Conductivity
- d) Contractility

11. Significance of slow Conduction at AVN

- a) To cover both ventricles in very short time to contract as one unit
- b) Prevent abnormal rhythm originated in atria to reach ventricles
- c) Both
- d) none

12. Ca⁺⁺ enter SAN cell to cause depolarization to firing level - 40 mv

- a) through Transient Ca⁺⁺ channel
- b) through long lasting Ca⁺⁺ channel

13. Sympathetic stimulation

- a) causes Tachycardia
- b) causes Bradycardia
- c) Decrease slope of pre potential
- d) none of the above

14. Which of the followings represents a normal sequence?

- a) Increase venous return - increase EDV - decrease myocardial contractility
- b) Increase venous return - decrease stroke volume - decrease cardiac output
- c) Increase venous return - increase EDV - increase myocardial contractility
- d) Increase venous return - increase ESV - decrease stroke volume

15. Which is a phase where all valves in the heart are closed?

- a) Isometric contraction phase
- b) Maximal ejection phase
- c) Atrial systole
- d) Reduced filling phase

16. The main creatine kinase elevated with myocardial infarction?

- a) Ck-bb
- b) Ck-mb
- c) Ck-mm
- d) Ck-total

17. If the heart rate of a person is 80 beat / min, calculate the duration of his cardiac cycle?

- a) 60 / 80
- b) 80 / 60
- c) 60 x 80
- d) 80 - 60

1	c	7	d	13	a
2	b	8	c	14	c
3	c	9	c	15	a
4	a	10	c	16	c
5	c	11	c	17	a
6	c	12	a		

