Unit 19 · Circulatory System

WORKSHEET

Full marks 32

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 32

1 Key words [4]

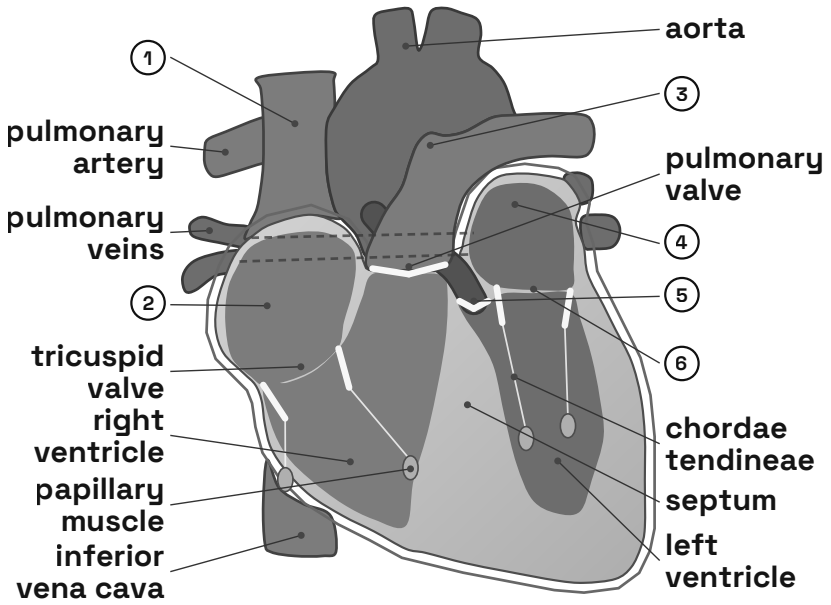
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

columnae carneae	fossa ovalis	musculi pectinati	myocardium	neurogenic	portal
Purkinje fibers	SA node	sphygmomanometer	Thebesian		

The middle, thickest layer of the heart wall, made of cardiac muscle, is the _____. The ridges of muscle on the inner wall of the auricles are the _____. An oval hollow on the interatrial septum, the _____, marks where the foramen ovale was. The heart's pacemaker is the _____. Fine fibers that carry the impulse through the walls of both ventricles are the _____. The opening of the coronary sinus is guarded by the _____ valve. Blood pressure is measured with a _____. A vein that begins in capillaries in one organ and ends in capillaries in another forms a _____ system.

2 Label the diagram [3]

The diagram shows the heart cut open lengthwise, seen from the front. Write the names of the parts 1 to 6. Each carries 0.5 mark.



1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which of the following valves is present at the opening of the coronary sinus? [1]

a. mitral
b. tricuspid
c. Eustachian
d. Thebesian

ii. What is the job of the AV node's short delay? [1]

a. to start the heartbeat
b. to let the atria finish emptying before the ventricles contract
c. to make the second heart sound
d. to slow the heart during sleep

iii. The pulmonary artery carries deoxygenated blood, yet it is called an artery. Why? [1]

a. it carries blood away from the heart
b. it has valves all along it
c. its blood is at a low pressure
d. it lies beside the aorta

iv. Rabina's blood clumps with anti-B serum but not with anti-A serum. Which group is she, and which antibody is in her plasma? [1]

a. group A, with anti-B
b. group B, with anti-A
c. group AB, with no antibodies
d. group O, with anti-A and anti-B

v. Sushant, who doesn't know his blood group, is hurt in an accident and needs a blood transfusion at once. A friend who has a valid certificate of his own blood group offers blood at once, and it is accepted without testing Sushant's blood. What was the donor's blood group? [1]

a. blood group A
b. blood group AB
c. blood group B
d. blood group O

4 Short answers [9]

Write short answers to the following questions.

a. Name the heart sounds lubb and dub, and say what makes each. [2]

b. Why does the left ventricle have a wall about three times as thick as the right ventricle? [2]

c. Mira and her husband are both blood group A, but their son is group O. Show with a cross how this is possible. **[2]**

d. What is the hepatic portal system? Write two of its significances. **[3]**

5 Numerical problem **[4]**

Show your working.

At rest, Dawa's heart beats 72 times a minute and each ventricle pumps 70 ml a beat. During a hard run his heart rate rises to 180 beats a minute and his stroke volume to 110 ml.

a. What is his cardiac output at rest and during the run?
b. How many times his resting output is his output during the run?
c. How long is one cardiac cycle at rest?

Answer:

6 Long answer **[4]**

Write a long answer to the following question.

Describe the origin and conduction of the heartbeat. Why is the human heart called myogenic?

7 Think [3]

An Rh-negative woman receives a transfusion of Rh-positive blood after an accident and seems well. Years later she needs a second transfusion, and is given Rh-positive blood again. Explain what is likely to happen, and why the first transfusion did no harm.

8 Activity: Your pulse (not marked)

Find your pulse at the wrist on the thumb side, using two fingers (not the thumb). Count the beats for one minute, sitting quietly; then after running on the spot for one minute; then after three minutes' rest.

When	Pulse (beats a minute)
sitting quietly	
just after running	
after three minutes' rest	

Which artery did you feel, and why did the rate change after running?