SHORT QUESTIONS

2. Why do we have a circulatory system?

Ans. Carbon dioxide and waste chemicals have been removed from the lungs and kidneys respectively. Our bodies are too large for materials to simple diffuse in and out. So, we have a system of internal transport - **a circulatory system** that transports oxygen and carbon dioxide, distributes nutrients to the body cells and conveys the waste products of metabolism to specific site for disposal.

3. Which side of the human heart contains oxygenated blood?

Ans: The left side of heart carries oxygenated blood. Fouf **pulmonary veins,** carrying oxygenated blood from the lung enter the left atrium. The **left atrium** sends blood through the **bicuspid valve** to the **left ventricle.** The left ventricle sends blood through the **aortic semilunar value** into the **aorta** to the body proper.

4. What are the contraction and relaxation of human heart called?

Ans: In a continuous, rhythmic cycle heart is passively filled with blood from the large vein and then the heart actively contract, propelling the blood throughout the body. Its alternating relaxations and contractions make up the **cardiac cycle.** The cardiac cycle is a sequence of one heartbeat.

5. Name two circulatory systems in the body of man.

Ans: Following are the two circulatory systems in the body of man.

(i) **Cardiovascular system** (ii) **Lymphatic system**

6. Where SA node, AV node, Purkinje fibre, Bundle of His located?

Ans: Sinoatrial node:

Sinoatrial nod in short is called **SA nod.** It consists of specialized plexus of cardiac muscles embedded in the upper wall of the right atrium. It is closed to where vena cava enter the atrium. The SA node has been developed from the sinus venosus and has become a part of the atrium, so it is called **sinoatrial node.**

Atrioventricular node:

Another specialized group of cardiac muscle fibres called **atrioventricular node.** In short it is called **AV node.** It is present near the junction of right atrium and right ventricle.

Bundle of His:

AV node is connected to a strand of specialized muscles (in the ventricular septum) known as **atrioventricular bundle** or **bundle of.** His (pronounced as "hiss"). This bundle passes through a small opening in the fibrous skeleton to reach the interventricular septum, where it divides to form right and left bundle branches, which extend beneath the endocardium on either side of the interventricular septum to the apices of the right and left ventricles respectively.

Purkinje fibres:

The inferior, terminal branches of the bundle of His are called **Purkinje fibres,** which are large-diameter cardiac muscle fibres.

7. Why action potentials travel along the Purkinje fibres more rapidly than through other muscle fibres?

Ans: The inferior, terminal branches of the bundle of His are called **Purkinje fibres,** which are large-diameter cardiac muscle fibres. They have fewer myofibrils than most cardiac muscle cells and do not contract forcefully. **Intercalated disks** are well developed between the Purkinje fibres and **contain numerous gap junctions.** As a result of these structural modifications, action potentials travel along the Purkinje fibres much more rapidly than through other cardiac muscle tissue.

8. Name the artery supplying blood to the heart.

Ans: The wall of the heart has its own supply of blood vessels to meet its vital needs. The myocardium is supplied with blood by the **right** and **left coronary arteries.**

9. What is blood pressure?

Ans: Blood pressure is the **fore exerted by the blood against any unit area** on the inner walls of the blood vessel. The standard reference for the blood pressure is the mercury (Hg) manometer, which measures pressure in millimeters of mercury (mm Hg).

10. Name the instrument used in measuring blood pressure.

Ans: Sphagmonometer is used in measuring blood pressure.

11. Why SA node is called pacemaker of the heart?

Ans: Cardiac muscle cells have the capacity to generate spontaneous action potentials, but cells of the SA node do so at a greater frequency. As a result, the SA node is called the **pacemaker** of the heart.

12. What is cardiac cycle?

Ans: In a continuous, rhythmic cycle heart is passively filled with blood from the large veins and then the heart actively contracts, propelling the blood throughout the body. Its alternating relaxations and contractions make up the **cardiac cycle.** The cardiac cycle is a sequence of one heartbeat.

13. What is an arterial pulse? What is the normal human pulse rate?

Ans: Arterial pulse indicates the rate at which left ventricles contracts and pushes blood into Aorta. A normal resting heart rate for adult's ranges from 60 to 100 beats a minute.

14. Why is AV node essential for the conduction of cardiac impulse?

Ans: When impulse from SA node reaches AV node, they become weak to cause ventricular contraction so they are renewed at AV node that is why they

are essential for the conduction of cardiac impulse. Impulse takes 0.11 sec to get renewed with AV node.

15. What are the risks associated with atherosclerosis?

Ans: Risks associated with atherosclerosis:

(i) Atherosclerosis is characterized by formation of yellow fatty streaks containing high proportion of cholesterol in the intima of large and medium sized arteries resulting in the narrowing of the vascular lumen.

(ii) Later, fibres are deposited in the cholesterol and these often start to calcify and become hard a process known as arteriosclerosis. The deposits are called atheromatous plaques.

(iii) As a plaque increases in size it protrudes into the lumen of the artery and beings to block it. The plaque first forms thrombus and may form embolus.

16. Why can you feel your pulse in arteries but not in veins? If there is no pulse in your veins what pushes the blood in veins back to the heart?

Ans: We feel pulse in arteries but not in veins because the blood pressure in arteries are much higher than in the veins, plus the arteries walls are muscular to keep them wide open, and make them uncompressible thus, we can feel the pulse without blocking the blood flow.

On the other hand, the veins walls are not muscular which make it very easier to block by some pressure. So, if we press it hand we won't feel the pulse.

OR

We feel pulse in arteries but not in veins because veins return low pressure blood to the heart. They have thinner walls than arteries. The pulse is the spurt of high-

pressure blood that passes along the arteries, when left ventricle contract it can be felt where arteries pass close to the body surface.

17. List the risk factors in your family history and life style for cardiovascular disease. Which factors can be changed? Which cannot? What can you do to lower your risk of heart disease?

Ans: Prevention of Cardio Vascular Disease:

We can take steps to prevent the occurrence of CVD.

(i) When a person smokes, the drug nicotine causes arterioles to constrict and blood pressure to rise.

(ii) Stimulants such as cocaine and amphetamines can cause an irregular heart attack and stroke.

(iii) Drinking alcohol and lack of exercise are also the factors that cause CVD.

Factors that can be avoided by change in life style:

Some of the factors can obviously be avoided by changes life style.

(i) One should try to maintain normal body weight.

(ii) It is recommended that one should take diet having low cholesterol, low saturated fats and low salt.

(iii) For calcium, magnesium and potassium one should take grains, fruits, green vegetables and vitamin D.

18. Define the term thrombus and differentiate between thrombus and embolus.

Ans: The clotted mass of blood within a vessel or the heart during life is called **thrombus. Embolus** is a detached intravascular solid, liquid or gaseous mass that is carried to a site distant from its point of origin. About 99% emboli arise from dislodgement of thrombi and are therefore called **thromboembolic.** Thrombus and embolus cause death.

19. Identify the factors causing atherosclerosis and arteriosclerosis.

Ans: Major factors that cause atherosclerosis: The major factors that cause atherosclerosis and arteriosclerosis are: Hypercholesterolemia, (hyperlipidemia), Hypertension, Cigarette smoking, Diabetes mellitus,

Minor risk factors: The minor risk factors are:

(a) Increasing age **(b)** Lack of exercise

(c) Stressful competitive life **(d)** Obesity

20. State the congenital heart problem related to malfunctioning of cardiac valves.

Ans: Congenital heart problem:

It is related to the malfunctioning of cardiac valves. **Valvular stenosis** results from scaring of the valve leaflets, may cause reduction in diameter of the valve orifice. Severe destruction of valve apparatus may cause valve ring dilation, with thickening and shortening of chordae tendinea resulting in **regurgitation** of blood through the valve when it is closed, i.e. valve closure is incomplete.

21. List the advantages and disadvantages of coronary bypass.

Ans: Following are the advantages and disadvantages of coronary bypass.

Advantages:

(i) Procedure is safe.

(ii) Angina is abolished or greatly reduced in almost 90% of the patients.

(iii) It is used in patients with: (a) 2 to 3 vessel diseases (b) disease of left main coronary artery (c) impaired left ventricular function (d) diabetic patients (e) lesion not suitable for angioplasty.

Disadvantages:

(i) Defused left ventricular damage

(ii) Per operative (during operation), myocardial infarction.

(iii) Infection

(iv) Wound pain

(v) Longer hospital stay

22. List the changes in the life styles that can protect man from hypertension and cardiac problems.

Ans: We can take steps to prevent the occurrence of CVD.

(i) When a person smokes, the drug nicotine causes arterioles to constrict and blood pressure to rise.

(ii) Stimulants such as cocaine and amphetamines can cause an irregular heart attack and stroke.

(iii) Drinking alcohol and lack of exercise are also the factors that cause CVD.

Factors that can be avoided by change in life style:

Some of the factors can obviously be avoided by changes in life style.

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(iii) For calcium, magnesium and potassium one should take grains, fruits, green vegetables and vitamin D.

23. What is the major feature of human lymphatic system?

Ans: The lymphatic system includes lymph, lymphocytes, lymphatic, vessels, lymph nodes, tonsils, spleen and thymus gland. About one sixth of the body consists of spaces between the cells, which collectively are called the **interstitium.** The fluid in these spaces is the **interstitial fluid** or **intercellular fluid.**

24. Justify why blood circulatory system is dependent on the lymphatic system.

Ans: The lymphatic system represents an accessory route by which fluid can flow from the interstitial spaces into the blood. And, the most important, the lymphatic system can carry proteins and large particulate matter away from the tissue spaces, neither of which can be removed by absorption directly into the blood capillary. This removal of proteins from the interstitial spaces is an essential function, without which we would die within 24 hours. Thus blood circulatory system is dependent on lymphatic system.

25. Interpret why the swelling of the lymph node is cause of concern.

Ans: Lymphatic flow is determined by the interstitial fluid pressure and activity of lymphatic pump. Lymph node swelling is a cause of concern because lymph node swells in different diseases, e.g. in pyrexia (fever) of unknown origin enlarged lymph nodes appear. Enlargement of anterior and tonsillar nodes is usually associated with tonsillitis or pharyngitis; posterior lymphadenopathy may suggest a glandular fever syndrome or HIV infection. The causes of lymphadenopathy (swelling of lymph node) are bacterial (streptococcal, tuberculosis), viral, protozoan, fungal (histoplasmosis), leukemias, lymphomas etc.

26. Define/Describe/Explain briefly:

Circulatory system, angiology, pericardium, chordate tendineae, pacemaker, myogenic, ECG, capillaries, pulmonary circulation, cardiac input, baroreflex, baroreceptors, Volume receptors, thrombosis, embolism, angina pectoris, congenital heart problem, myocardial infarction, angioplasty, stent, hypertension, hypotension, postural hypotension, interstitial fluid, lymph, vasomotion, embolism, spleen.

Ans: Circulatory system:

All the cells of ur body need food from small intestine and oxygen from the lungs. Carbon dioxide and waste chemicals have to be removed from the lungs and kidneys respectively,

Our bodies are too large for materials to simple diffuse in and out. So, we have a system of internal transport – **a circulatory system** that transports oxygen and carbon dioxide, distributes nutrients to the body cells and conveys the waste product of metabolism to specific site for disposal.

Angiology: The study of the diseases of cardiovascular system is called **angiology.**

Pericardium: The pericardium is a closed sac that surrounds heart. It consists of inelastic white fibrous tissues.

Chordae tendineae: They are strong connective tissue strings which attach papillary muscles to the cusps of the atrioventricular valves.

OR

Each ventricle contains cone-shaped muscular pillars called **papillary** (meaning, pimple-shaped) **muscles.** These muscles are attached by thin, strong connective tissue strings called **chordae tendineae** (meaning heart strings) to the cusps of the atrioventricular valves.

Pacemaker: A pacemaker is a small device that helps your heart beat more regularly. It does this with a small electric stimulation that helps control your heartbeat. Your doctor puts the pacemaker under the skin on your chest. Just under your collarbone. It's hooked up to your heart with tiny wires.

OR

Cardiac muscle cells have the capacity to generate spontaneous action potentials, but cells of the SA node do so at a greater frequency. As a result, the SA node is called the **pacemaker** of the heart it set the pace of heart, which helps your heart beat more regularly.

Myogenic: Myogenic is the term used for muscles or tissues that can contract on their own, without any external electrical stimulus, from the brain or spinal cord.
Example: An example of these phenomena is actually present in our kidneys to regulate the flow of blood in vessels. Another example is the human heart.

ECG: A recording of the electrical activity of the heart is called electrocardiogram (ECG) An ECG is a simple, noninvasive procedure. Electrodes are placed skin of the chest and connected in a specific order to

machine that, when turned on measures electrical activity all over the heart. Output usually appears on a long scroll of paper that displays a printed graph of activity on a computer screen.

Capillaries: Capillaries are the smallest of blood vessels. They serve to distribute oxygenated blood from arteries to the tissues of the body and to feed deoxygenated blood from the tissues back into the veins. The capillaries are thus a central component in the circulatory system.

Pulmonary circulation: Pulmonary circulation transports oxygen-poor blood from the right ventricle to the lungs, where blood picks up a new blood supply. Then it returns the oxygen-rich blood to the left atrium.

OR

Pulmonary circulation is the system of blood vessels and associated tissues forming the part of the cardiovascular system that carries oxygen-poor ("deoxygenated") blood away from the heart, to the lungs, and returns oxygen-rich ("deoxygenated") blood from the lungs back to the heart.

Cardiac input: Cardiac input describes the volume of blood is being taken by the heart in particular by the left or right atrium, per unit time.

Baroreflex: The baroreflex or baroreceptor reflex is one of the body's homeostatic mechanisms that help to maintain blood pressure at nearly constant levels.

Baroreceptors: Baroreceptors (or archaically, pressor receptors) are sensors, located in the blood vessels of all vertebrate animals.

They play an important role in:

(i) Increase in the pressure of blood.

(ii) Triggers increased action potential generation rates.

(iii) Peripheral resistance.

(iv) Baroreflex

Volume receptors: Volume receptors are low-pressure baroreceptors that are found in the atria of the heart and carotid arteries.

When these receptors detect a blood, volume decrease in the atria, a signal is transmitted from the receptors to the hypothalamus in the brain. They are actually are sensors.

Thrombosis: The clotted mass of blood within a vessel or the heart during life is called **thrombus.**

Embolism: The occlusion (a closing of an opening) of some part of the cardiovascular system by any mass transported to the site through the blood stream is called **embolism.**

Angina pectoris: Due to atherosclerosis, a person may feel occasional chest pain, a condition known as **angina pectoris** (Latin *angere* to choke and *pecto* breast). **Angina** is most likely to occur when the heart is laboring hard because of physical or emotional stress.

Congenital heart problem: It is related to the malfunctioning of cardiac valves. **Valvular stenosis** results from scaring of the valve leaflets may cause reduction in diameter of the valve orifice. Severe destruction of valve apparatus may cause valve ring dilation, with thickening and shortening of chordae tendinea resulting in **regurgitation** of blood through the valve when it is closed, i.e. valve closure is incomplete.

Myocardial infarction: Myocardial infection (MI), commonly known as a heart attack occurs when blood flow decreases or stops to a part of the heart, causing damage to the heart muscle.

Angioplasty: In angioplasty, a cardiologist threads a plastic tube into an artery of an arm or a leg and guides it through a major blood vessel toward the heart. When the tube reaches the region of plaque in a coronary artery a balloon is attached to the end of the tube is inflated forcing the vessel open. However, the artery may not remain open, so slotted tubes called **stents** are expanded inside the artery to keep the artery open. Stents are coated with heparin to prevent blood clotting and chemicals to prevent arterial closing.

Stent: In medicine, a stent is a metal or plastic tube inserted into the lumen of an anatomic vessel or duct to keep the passageway open, and stenting is the placement of a stent.

OR

A stent is a tiny tube that your doctor can insert into a blocked passageway to keep it open. The stent restores the flow of blood or other fluids, depending on where it's placed.

Hypertension: Any blood pressure that is above the normal expected pressure for an individual in a given environment is called hypertension. Hypertension is defined as blood pressure higher than 140/90 mmHg (millimeters of mercury).

Hypotension: Any blood pressure that is below the normal expected pressure for an individual in a given environment is called hypotension. Hypotension is defined as blood pressure lower than 90/60 mmHg (millimeters of mercury).

Postural hypotension: Postural hypotension is a form of low blood pressure that happens when you stand up from sitting or lying down. Postural hypotension can make you feel dizzy or lightheaded and may be even faint.

Interstitial fluid: Interstitial fluid (ISF) is a solution that bathes and surrounds the tissue cells of multicellular animals. It is found in the spaces between body tissues.

Lymph: Lymph is clear fluids that travels through your body's arteries, circulates through your tissues to cleanse them and keep them firm, and then drains away through the lymphatic system.

OR

Lymph is the fluid that circulates throughout the lymphatic system. Lymph means clear water and it is derived from the fluid and protein that has been squeezed out of the blood (i.e. blood plasma)

Vasomotion: The precapillary sphincters and metarterioles often open and close cyclically several times per minute, with the duration of the open phases being about proportional to the metabolic needs of the tissue. The cyclic opening and closing is called vasomotion.

Embolism: The occlusion (a closing of an opening) of some part of the cardiovascular system by any mass transported to the site through the blood stream is called **embolism.**

Spleen: The spleen is an organ in the upper far left part of the abdomen, to the left of the stomach.

The spleen plays multiple supporting roles in the body.

(i) It acts as a filter for blood as part of the immune system

(ii) Old red blood cells are recycled in the spleen, and platelets and white blood cells are stored there.

(iii) The spleen also helps fight certain kinds of bacteria that cause pneumonia and meningitis

27. Write the differences between:

(a) Cardia and coronary

(b) Pericardium and endocardium

(c) Bicuspid valve and tricuspid valve

(d) Systole and diastole

(e) SA node and AV node

(f) P-wave and T-wave of ECG

(g) Arteries and veins

(h) Blood capillaries and lymph capillaries

(i) Vasodilatation and vasoconstriction

(j) Interlobar arteries and volume receptor

(k) Baroreceptor and volume receptor

(l) Thrombus and embolus

(m) Hypertension and hypotension

(n) Interstitial fluid and lymph

Ans: (a) Cardia and coronary:

Cardia	Coronary
Cardia is the Greek name of heart	Latin name for the heart is cor.

Cardia is the origin of the adjective cardiac	Cor is the origin of the adjective **coronary**

(b) pericardium and endocardium:

Pericardium	Endocardium
The pericardium is a closed sac that surrounds heart	The smooth inner surface of the heart chambers is the **endocardium**
Consists of inelastic white fibrous tissues	Consists of simple squamous epithelium over a layer of connective tissue
Its function is to reduce the function between the heart wall and surrounding tissues when the heart is bearing. The inelastic nature of the pericardium as whole prevents the heart from being overstretched or overfilled with blood	Its function is to provide protection and support to the valves and heart chambers

(c) bicuspid valve and tricuspid valve:

Tricuspid valve	Bicuspid valve
The tricuspid valve is present between the right atrium and the right ventricle	The bicuspid valve is present between the lift atrium and the lift ventricle
This valve opens to allow blood to be pumped from the right atrium	It also allows the flow of blood in one direction. After the oxygenated

into the right ventricle. Once the blood has passed through the valve closes so the blood cannot pass back	blood flows from the atrium to the ventricle the valve closes to prevent the blood from flowing back
It has three flaps.	It has only 2 flaps

(a) systole and diastole:

	Diastolic	Systolic
Definition	It is the pressure that is exerted on the walls of the various arteries around the body in between heart beats when the heart is relaxed	It measures the amount of pressure that blood exerts on arteries and vessels while the heart is beating
Normal range	60 – 60 mmHg (adults), 65 mmHg (infants), 65 mmHg (6 to 9 years)	90 – 120 mmHg (adults), 95 mmHg (infants), 100 mmHg (6 to 9 years)
Importance with age	Diastole readings are particularly important in monitoring blood pressure in younger individuals.	As a person's age increases, so does the importance of their systolic blood pressure measurement.
Blood Pressure	Diastolic represent the minimum pressure in the arteries	Systolic represents the maximum pressure exerted on the arteries

Ventricles of heart	Fill with blood	Left ventricles contract
Blood Vessels	Relaxed	Contracted
Blood Pressure reading	The lower number is diastolic pressure	The higher number is systolic pressure

(b) SA node and AV node:

	SA Node	**AV Node**
Abbreviation	SA node stands for sinoatrial node	AV node stands for the atrioventricular node
Also Known As	SA node is known as the pacemaker of the heart	AV node is also known as pace setter of the heart
Conducting System of Haert	SA node is the first component of conducting a system of the heart	AV node is the second component of conducting a system of the heart
Influenced by	It is influenced by autonomic nervous system	It is influenced by the impulses from SA node
Location	SA node is located in the superior lateral wall of the opening of superior vena cava (SVC)	AV node is located in the posterior septal wall of right atrium just near to opening of the coronary sinus

Beats per Minute	SA node has the rate of impulse discharge of almost 90-100 beats per minute	AV node normal firing rate is 40-50 times per minute
Length	It is longer	It is longer

(c) P-wave and T-wave of ECG:

P-wave	T-wave
P-wave characterized by the depolarization of the atrial fibres of the SA node	T-wave is characterized by the ventricular repolarization
The P-wave represents excitation and occurs just prior to contraction of the atria	T-wave occurs just before the ventricles relax
It is of atrial origin	It is of ventricular origin
During this phase, the impulse of contraction is generated by SA node, causing atrial depolarization	During this phase, the ventricles relax and return to their normal state

(g) arteries and veins:

	Arteries	Veins
Overview	Arteries are red blood vessels that carry blood away from the heart	

Oxygen Concentration	Arteries carry oxygenated blood	Veins carry deoxygenated blood
Direction of Blood Flow	From the heart to various parts of the body	From various parts of the body to the heart
Anatomy	Thick, elastic muscle layer that can handle high pressure of the blood flowing through the arteries	Thin, elastic muscle layer with semilunar valves that prevent the blood from flowing in the opposite direction
Location	Deeper in the body	Closer to the skin
Walls	Arterial walls aremore rigid	Veins have collapsible walls
Valves	Aren't present (except for semi-lunar valves)	Are present, especially in limbs

Thickest layer	Tunica media	Tunica adventitia
Types	Pulmonary and systemic arteries	Superficial veins, deep veins, pulmonary veins and systemic veins
Disease	Parthenogenesis-myocardial ischemia	Deep vein thrombosis

(h) blood capillaries and lymph capillaries:

Blood capillaries	Lymph capillaries
They are reddish, easy to observe.	They are Colorless difficult to observe
They are joined to arterioles at one end and to venules at another end	They have closed ends
Narrower than lymph capillaries	Wider than blood capillaries
Wall consists of normal endothelium and well-developed basement membrane	Wall consists of thin endothelium and poorly developed basement membrane
Contain red blood	Contain colorless lymph
Have relatively high pressure	Have relatively low pressure

(i) **Vasodilatation and vasoconstriction:**

Vasodilatation	Vasoconstriction
Vasodilatation is the dilation of blood vessels	Vasoconstriction is the constriction of blood vessels
Increase Lumen size	Decrease lumen size
It causes increased blood flow per unit time	It causes decreased blood flow per unit time
During Vasodilatation smooth muscles relax	During Vasoconstriction smooth muscles contract
Kinins are powerful Vasodilator	Norepinephrine is a powerful Vasoconstrictor

(j) Interlobar arteries and interlobular arteries:

Interlobar arteries	Interlobular arteries
Interlobar arteries are the division of renal artery	Interlobular arteries radiate from the arcuate arteries
They pass between the renal pyramids through renal column	They project into the renal cortex
They give rise to arcuate arteries	They give rise to microscopic afferent glomerular arterioles

(k) Baroreceptor and volume receptor:

Baroreceptor	Volume receptor
Baroreceptors (or archaically, pressor receptors) are sensors	Atrial volume receptors (also known as Veno-atrial stretch receptors) are low-pressure baroreceptors
Located in the blood vessels of all vertebrate animals	They are found in the atria of the heart
They play an important role in: (i) Increase in the pressure of blood (ii) Triggers increased action potential generation rates (iii) Peripheral resistance (iv) Baroreflex	They play an important role in: (i) Increase in the pressure of blood (ii) Triggers increased action potential generation rates (iii) Peripheral resistance (iv) Baroreflex

(l) thrombus and embolus:

Thrombus	Embolus
The clotted mass of blood within a vessel or the heart during life is called **thrombus**	**Embolus** is a detached intravascular solid, liquid or gaseous mass that is carried to a site distant from its point of origin
Thrombosis is caused due to disturbed flow of blood, hypercoagulability, and injury to endothelial lining of the blood vessel	About 99% emboli arise from dislodgement of thrombi and are therefore called **thromboembolic**
Example: Deep venous **thrombus**	**Example:** pulmonary embolus

(m) hypertension and hypotension:

Hypertension	Hypotension
Any blood pressure that is above the normal expected for an individual in a given environment	Any blood pressure that is below the normal expected for an individual in a given environment
Hypertension is defined as blood pressure higher than 140/90 mmHg (millimeters of mercury)	Hypotension is defined as blood pressure lower than 90/60 mmHg (millimeters of mercury)
Reasons that can cause hypertension Physical inactivity Salt-rich diets with processed and fatty foods, alcohol and tobacco use	Reasons that can cause hypotension include Heart problems, Endocrine problems, Dehydration, Blood loss, lack of nutrients in your diet.

(n) interstitial fluid and lymph:

Interstitial fluid	Lymph
Interstitial fluid (ISF) is a solution that bathes and surrounds the tissue cells of multicellular animals	Lymph means clear water and it is derived from the fluid and protein that has been squeezed out of the blood (i.e. blood plasma)
Found in the spaces between body tissues	Found in the lymphatic system