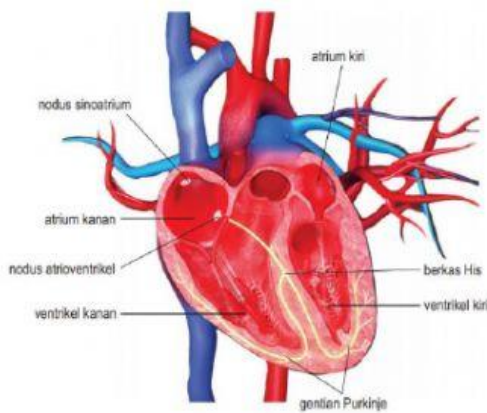


MODUL CEMERLANG
BIOLOGI
BENKEL BIOLOGI TING 5

QUESTION 1

Please Drag & Drop words below into blank space to make a complete answer of each questions.



(a) Diagram above shows the positions of the sinoatrial (SA) node, atrioventricular (AV) node and Purkinje fibres in the walls of the heart. Explain the functions of these specialized structure in the pumping of the heart

[5marks]

P1 : The _____ generates electrical impulses

P2 : The electrical impulses spread rapidly over the walls of both _____, making the walls contract _____.

P3: Contractions of the atria pushes the bicuspid and tricuspid valves open and help to pump blood into the _____.

P4: The electrical signals reach the AV node. The bundle of His fibres, bundle branches and Purkinje fibres send the impulses to the apex of the _____

P5: The electrical impulses spread to the ventricles, causing them to _____ and push blood out to the lungs and body.

(b) Explain what will happen to a person if the pacemaker (sinoatrial node) is impaired and state a method to overcome this consequence? [5 marks]

P1 - less _____ impulses are generated from SA node to the walls of the atria.

P2 - contraction of the atria are weakened causing less _____ to enter the ventricles

P3- less nerve impulses are sent to the _____

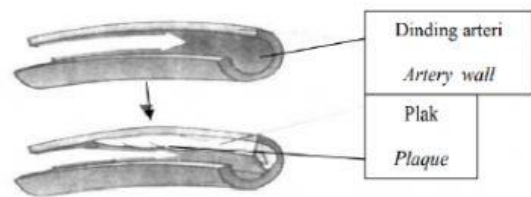
P4 - thus contraction of ventricles are _____ causing less blood to be pumped out of the heart.

Ways to overcome consequence :

P5 - An electronic _____ is used for replacing the original pacemaker

c) Rajah 3 menunjukkan perubahan dalam arteri individu dalam jangka masa 10 tahun.

Diagram3 shows the changes in the artery of an individual in 10 years time



Rajah 3
Diagram 3

Based on the diagram, name one example of the disease that caused by the formation of plaque.

Example : _____

QUESTION 2

Please Drag & Drop words below into blank space to make a complete answer of each questions.

Antibody infection artificial pathogen polio

lymphocytes Passive antiserum specific

BCG immediate Active vaccine temporary

Immunization is a process of vaccinating babies. Immunizations can be given by injection (through a muscle or under the skin) or by mouth. Vaccination side effects are common and are usually mild and harmless. Here are the pictures of the immunization process carried out:



Bayi diberi imunisasi secara suntikan



Bayi diberi imunisasi secara oral

(a) Why are the two individuals who are injected able to fight the infection certain diseases? Give an appropriate example [5 marks]

P1 -Immunity are produced by an individual when a _____ is injected into the body.

P2- A vaccine is a suspension of a dead, attenuated _____.

P3- When the vaccine is injected, _____ will build antibodies to resist pathogen.

P4- This immunity is called _____active immunity.

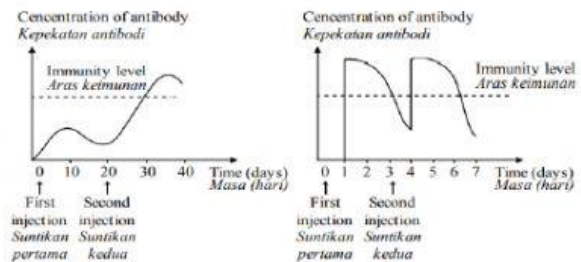
P4- If the pathogen invades, then the _____ can be prevented.

P5- Example: _____ injection to prevent dental caries / cough infection dry

_____ injections to prevent paralysis

Rubella injections to prevent measles

(b) The graphs in diagram below show the concentration of antibodies in the blood of two individuals, X and Y, after given two injections of different substances.



Describe the differences between the immunity obtained by the individuals [5 marks]

P1: X - _____ immunity

Y - _____ immunity

P2: X - Immunity achieved through the injection of a vaccine

Y -Immunity achieved through the injection of an _____ / serum which contains a _____ antibody

P3: X - Does not result in an _____ immunity

Y - Results in an immediate immunity

P4: X - Lymphocytes (in the body will be activated to) produce antibody

Y - _____ is received from the injections

P5: X - The immunity usually last for a long time

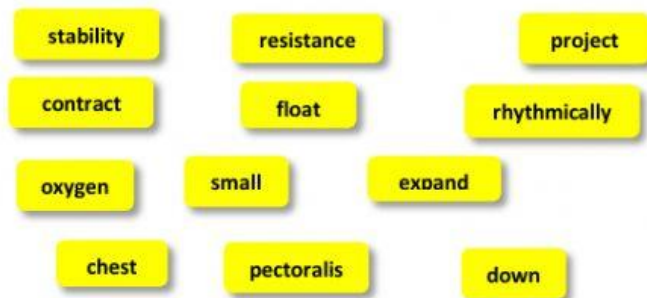
Y - The immunity lasts only for a short term / and offers _____ protection

P6: X - Second injection (booster) is necessary to increase the antibody production (to a level that protects the person against the disease)

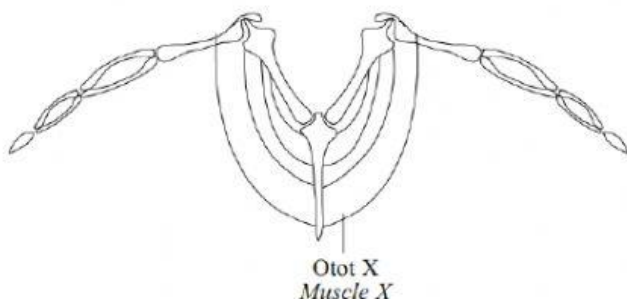
Y - Second injection is given when (the person still infected and) his antibodies has dropped below immunity level, (therefore he needs antiserum injection against the disease)

QUESTION 3

Please Drag & Drop words below into blank space to make a complete answer of each questions.



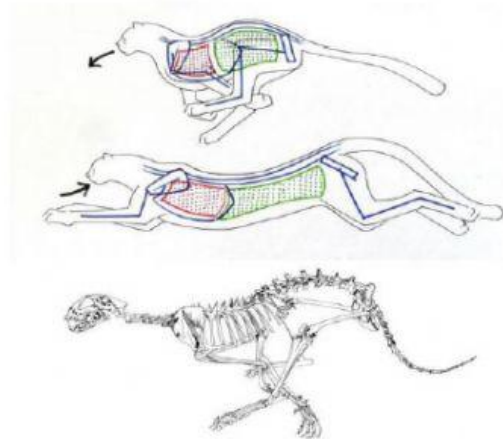
(a) Diagram below shows the skeletal system of a normal bird. Muscle X in a pigeon nestling is not fully developed in the growth process



Explain how this affects its movement [6 marks]

- E1: Muscle X is the major _____ muscle
- E2: The major choral muscle cannot _____
- E3: the wings cannot move _____
- E4: unable to move down and up _____
- E5: forward movement cannot be produced
- E6: birds cannot _____
- E7: young birds cannot fly

(b) The cheetah can be considered as the world's fastest land runner animal. It has a recorded speed of 96–120 km/h (60–75 mph). The cheetah can accelerate from 0 to 100 km/h in three seconds



Based on the diagram, suggest the adaptive features that the cheetah has, to enable it to be the fastest land runner in the world.

- F1: has a _____ head / straight body shape
- E1: reduces air _____ while moving
- F2: large _____ cavity
- E2: allows it to _____ the lungs to take in oxygen the more
- F3: has a long tail
- E3: provides _____ while moving
- F4: has a flexible vertebral
- E4: can _____ the body to the maximum while moving
- E5: give space to the front and back limbs for projecting to the maximum
- F5: small footprint
- E6: lightweight and easy to control
- F6: small teeth
- E7: creates a large oral cavity to take in _____

SOALAN 4

Arrange statements below to make a complete essay for each question

a nerve impulse is sent/transmitted to the central nervous system (CNS) / spinal cord/ brain/

more energy is produced

Adrenaline causes the heart to beat faster // ventilation/ breathing rate increase// blood pressure increase // glycogen converts to glucose

the CNS/spinal cord/brain/interneuron sends a nerve/

through afferent neuron

through efferent neuron (across a synapse)

across a synapse

and triggers a nerve/stimulus impulse

for muscle contractions (hence, the mother is able to lift the car to free her child)

and cellular respiration rate to be higher

the receptor in the eyes/retina detect the stimulus

adrenal glands are stimulated to produce / secrete adrenaline

A mother and her young child were involved in an accident. The child was pinned under their car. Upon seeing her child under the car, the mother unconsciously lifted the car to free her child

Using your knowledge in biology, explain how the endocrine and nervous systems coordinate the mother's response in such situation [10 marks]

P1

P2

P3

P4

P5

P6

P7

P8

P9

P10

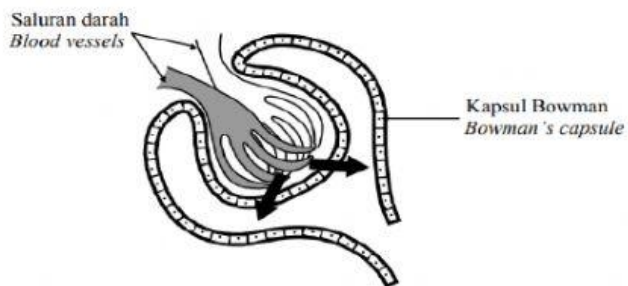
P11

P12

QUESTION 5

Arrange statements below to make a complete essay for each question

Diagram below shows part of the circulatory system and a nephron in human kidney.



Describe the formation of the glomerular filtrate.
[4 marks]

because blood from the aorta reaches the
Nephron/glomerulus

and due to the difference between the diameter
of the afferent

When blood enters the glomerulus,
ultrafiltration takes place

The high pressure forces fluid through the
filtration membrane into capsular space forming
glomerular filtrate

Jawapan:

E1

E2

E3

E4