

**Qualification title:** Level 3 Advanced Technical Diploma in Complementary Therapies (540)  
**Exam title:** 6004-030 Level 3 Complementary Therapies - Theory exam (1)  
**Version:** June 2017  
**Base mark:** 60

**1**

State **three** phases of the tissue healing process.

(3 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 3 marks:**

- Bleeding.
- Inflammation.
- Proliferation.
- Remodelling.

**2**

Explain the function of Adenosine Triphosphate (ATP) in the role of providing energy for cells.

(3 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 3 marks:**

- ATP stores and releases a steady supply of energy (1) which the cell can use to build proteins.
- Energy is liberated from the ATP molecule by a reaction (1) that removes one of the phosphate-oxygen groups (1) leaving diphosphate (ADP) (1).
- When energy is not immediately required ATP is stored for use when required. (1)
- When a constant supply of energy is required, ADP is converted back to ATP. (1)

**3**

Explain the catagen stage of the hair growth cycle.

(4 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 4 marks:**

- The papilla separates (1) withdrawing from the matrix.(1).
- The hair continues to grow with reduced nourishment (1) due to the withdrawal of the papilla.
- The papilla collapses (1) and the follicle structure starts to degenerate (1) causing cells to move inwards to the lower follicle (1) to form the dermal cord (1).
- The hair becomes detached and is shed (1) remains dormant in the remains of the hair follicle (1).
- The club root has brush-like attachments (1) which lodges in the upper part of the follicle (1).

**4**

State **three** mechanisms of sensory perception.

(3 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 3 marks:**

- Light touch.
- Pressure.
- Vibration.
- Mechanical.
- Thermal/temperature.
- Noxious.
- Hearing.
- Smell.
- Taste.
- Touch.
- Sight.

**5**

Explain how osteoarthritis affects the skeletal system.

(2 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 2 marks:**

- Deterioration of hyaline cartilage reduces capsular space (1) which causes bone on bone friction (1) which causes inflammation (1) / degeneration (1).
- Wear and tear of bone (1) causes bone spurs. (1)
- Capsular ligaments thicken and contract (1) to stabilise the joint (1).

**6**

State the bone that articulates with **each** of the following.

a) Tibia.

(1 mark)

b) Radius.

(1 mark)

c) Cervical 7 (C7).

(1 mark)

**Answer:**

a)

**1 mark for each of the following, to a maximum of 1 mark:**

- Fibula calcaneous/ femur.

b)

**1 mark for each of the following, to a maximum of 1 mark:**

- Carpal (scaphoid/lunate) ulna/humerus.

c)

**1 mark for each of the following, to a maximum of 1 mark:**

- Thoracic 1 (T1) or Cervical (C6).

**7**

Explain how antagonist muscles support movement.

(2 marks)

**Answer:**

**1 mark for each of the following, to a maximum of 2 marks:**

- Working in pairs (1), one muscle contracts/shortens whilst the other muscle relaxes/lengthens (1) to move the bone in one direction (1), when the contracting muscle relaxes and the relaxed muscle contracts this moves the bone back to its starting position (1).

**8**

State **two** rotator cuff muscles.

(2 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 2 marks:**

- Supraspinatus.
- Subscapularis.
- Teres minor.
- Infraspinatus.

**9**

Explain the difference in roles between **each** of the following.

a) The pulmonary artery and the aorta.

(1 mark)

b) The pulmonary vein and the inferior vena cava.

(1 mark)

**Answer:**

a)

**1 mark for each of the following, to a maximum of 1 mark:**

- The pulmonary artery carries deoxygenated blood from the heart to the lungs and the aorta carries oxygenated blood from the heart to the body.

b)

**1 mark for each of the following, to a maximum of 1 mark:**

- The pulmonary vein carries oxygenated blood to the heart from the lungs and the inferior vena cava transports deoxygenated blood from the lower body to the heart.

**10**

State **two** major arteries of the upper arm.

(2 marks)

**Answer:**

**1 mark for each of the following, to a maximum of 2 marks:**

- Axillary.
- Brachial.

**11**

Explain how pressure within the interstitial tissues impacts on lymph drainage.

(2 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 2 marks:**

- When the pressure is greater in the tissues than in the lymphatic capillary (1) the mini valves/overlapping cells of the lymphatic walls open to allow more lymphatic fluid to enter (1).
- When the pressure is greater inside the lymphatic capillary (1) it forces the valves/cells shut reducing flow of lymphatic fluid (1).

**12**

Explain how lymph nodes respond to infection.

(1 mark)

**Answer:**

**1 mark for each of the following, to a maximum of 1 mark:**

- Nodes filter pathogens from the interstitial tissues and pathogens are collected in the nodes to be neutralised/removed.
- Lymph nodes contain T cells to fight infection.

**13**

State the location of the **each** of the following lymph nodes.

a) Buccal.

(1 mark)

b) Mesenteric.

(1 mark)

c) Axillary.

(1 mark)

**Answer:**

a)

**1 mark for each of the following, to a maximum of 1 mark:**

- Lower cheek./under cheek bone.

b)

**1 mark for each of the following, to a maximum of 1 mark:**

- Intestine/abdominal walls.

c)

**1 mark for each of the following, to a maximum of 1 mark:**

- Armpit/underarm.

**14**

a) State the **two** locations where a chemoreceptor can be found.

(2 marks)

b) Explain the function of a chemoreceptor.

(1 mark)

**Answer:**

a)

**1 mark for each of the following, to a maximum of 2 marks:**

- Nose.
- Tongue.
- Olfactory
- Carotid artery
- Aorta

b)

**1 mark each for any of the following, to a maximum of 1 mark:**

- Extensions of the peripheral nervous system which detect changes in chemical concentrations.

**15**

a) State one example of a neurotransmitter.

(1 mark)

b) Explain the function of a neurotransmitter.

(2 marks)

**Answer:**

a)

**1 mark each for any of the following, to a maximum of 1 mark:**

- Acetylcholine.
- Dopamine.
- Serotonin.
- Norepinephrine (noradrenaline).

b)

**1 mark each for any of the following, to a maximum of 2 marks:**

- Neurotransmitters are chemicals that are secreted into the synaptic gap (1) and transmit an electrical signal/impulse one way to the next neuron (1).

**16**

Explain the function of the pleural membranes.

(3 marks)

**Answer:**

**1 mark each for any of the following, to a maximum of 3 marks:**

- Membrane/serosa covers the thoracic wall and superior diaphragm forming a protective lining around the heart and lungs (1) which limits the spread of local infections / bacteria (1)
- Produce pleural fluid which fill the pleural cavity lubricating the lungs (1) to prevent friction (1) and allow the lungs to move easily (over the thorax wall) during breathing/inhalation & exhalation (1).
- 

**17**

State the **three** sections within the pharynx.

(3 marks)

**Answer:**

**1 mark for each of the following, to a maximum of 3 marks:**

- Nasopharynx.
- Oropharynx.
- Laryngopharynx.

**18**

a) State **two** salivary glands.

(2 marks)

b) Explain the function of saliva.

(4 marks)

**Answer:**

a)

**1 mark each for any of the following, to a maximum of 2 marks:**

- Submandibular.
- Sublingual.
- Parotid.

b)

**1 mark for each of the following, to a maximum of 4 marks:**

- Saliva is secreted continuously in sufficient amounts (1) to keep the mouth moist/ lubricated (1).
- Combined with water forms a thick mucus that lubricates the oral cavity (1) and hydrates foodstuffs to help facilitate chewing / to mould food (1).
- Saliva protects against micro-organisms / bacteria (1) as it contains antibodies/lysozyme/defensins (1).
- Contains the (digestive) enzymes (1) salivary amylase/lingual lipase (1) which starts the digestive process in the oral cavity/ break down of food (1).



**19**

Explain the function of **each** of the following hormones.

a) Vasopressin.

(2 marks)

b) Oxytocin.

(2 marks)

**Answer:**

a)

**1 mark for each of the following, to a maximum of 2 marks:**

- An antidiuretic hormone which inhibits/prevents urine production (1) and prevents wide spread fluctuations in water balance (1) affects absorption/reabsorption of fluid in the kidneys (1) maintains homeostasis (1) helping to prevent dehydration and water overload (1).

b)

**1 mark for each of the following, to a maximum of 2 marks:**

- Released during pregnancy and stimulates uterine contractions (1) levels increase during childbirth (1).
- Oxytocin receptors in the uterus increase towards the end of pregnancy and become more sensitive (1) so that uterine and cervix muscles stretch and contract (1) gaining momentum resulting in child birth (1).
- Following childbirth oxytocin triggers/stimulates milk/secretion (1) during/following child birth (1).

**20**

State one hormone associated with **each** of the following pathologies.

a) Cushing syndrome.

(1 mark)

b) Seasonal affective disorder (SAD).

(1 mark)

**Answer:**

**1 mark for each of the following, to a maximum of 1 mark:**

a)

ACTH (adrenocorticotrophic hormone) **1 mark each for any of the following, to a maximum of 1 mark:**

b)

- Serotonin.
- Melatonin.
- Dopamine.

**21**

Explain how the urethra controls the flow of urine.

(2 marks)

**Answer:**

**One mark for identification and one mark for the linked explanation to a maximum of two marks.**

**One mark for identifying internal and external sphincter, one mark for broader explanation.**

- The urethra has an internal sphincter (1) which is a ring of muscles that holds the bladder in place (1) and the body will open/close this sphincter automatically without conscious control (1).
- The urethra has an external sphincter (1) which acts like a tap to keep urine in the bladder (1) and is controlled by the voluntary nerves with conscious control (1).

**22**

State **two** electrolytes.

(2 marks)

**Answer:**

**1 mark for each of the following, to a maximum of 2 marks:**

- Sodium.
- Potassium.
- Chloride.
- Calcium.
- Magnesium.
- Bicarbonate.