To be completed by the Examiner			
Question	Mark	Question	Mark
1		10(c)	
2		11	
3		12(a)	
4		12(b)	
5		13	
6		14	
7		15	
8		16	
9(a)		17	
9(b)		18	
9(c)		19	
10(a)		20	
10(b)			
		TOTAL MARK	

NCFE Level 1/2 Technical Award in Health and Fitness (603/2650/5)

Unit 01 Introduction to body systems and principles of training in health and fitness

Paper number: Past Paper

Wednesday 9 March 2022 9.00 am–10.30 am

Time allowed: 1 hour 30 minutes

Learner instructions

- Use black or blue ink.
- Answer **all** questions.
- Read each question carefully.
- You **must** write your responses in the spaces provided.
- You may do rough work in this answer book. Cross through any work you do not wish to be marked.
- All of the work you submit **must** be your own.

Learner information

- The marks available for each question are shown in brackets.
- The maximum mark for this paper is 80.
- You may use a calculator.

Please complete the details below clearly and in BLOCK CAPITALS.

Learner name _____

Centre name _____

Learner number | | Centre number | |

Do not turn over until the invigilator tells you to do so.

Section 1

This section has a possible 8 marks.

You should spend about 10 minutes on this section.

Answer **all** questions in the spaces provided.

1 Which **one** of the following muscles is located on the upper back and neck?

[1 mark]

A Biceps

B Deltoid

C Soleus

D Trapezius

Answer _____

2 Which **one** of the following regions of the spine is positioned **directly** below the thoracic region?

[1 mark]

A Cervical

B Coccyx

C Lumbar

D Sacrum

Answer _____

3 Which **one** of the following is a health-related component of fitness?

[1 mark]

A Agility

B Flexibility

C Power

D Reaction time

Answer _____

4 Which **one** of the following is a short-term effect of exercise?

[1 mark]

A Increased muscle fatigue

B Increased muscle hypertrophy

C Increased muscular endurance

D Increased muscular strength

Answer _____

5 Which **one** of the following is a fixed joint?

[1 mark]

A Clavicle

B Elbow

C Pelvis

D Thumb

Answer _____

6 Which **one** of the following is the calculation for cardiac output (CO)?

[1 mark]

A CO = SV + HR

B CO = SV - HR

C CO = SV x HR

D CO = SV ÷ HR

Answer _____

7 Which **one** of the following heart chambers receives oxygenated blood from the left atrium?

[1 mark]

A Left ventricle

B Right atrium

C Right ventricle

D Vena cava

Answer _____

8 Which **one** of the following activities would be suited to Type 1 slow twitch muscle fibres?

[1 mark]

A Completing five press-ups

B Completing five star jumps

C Jogging for one mile

D Sprinting for 20 metres

Answer _____

Section 2

This section has a possible 51 marks.

You should spend about 50 minutes on this section.

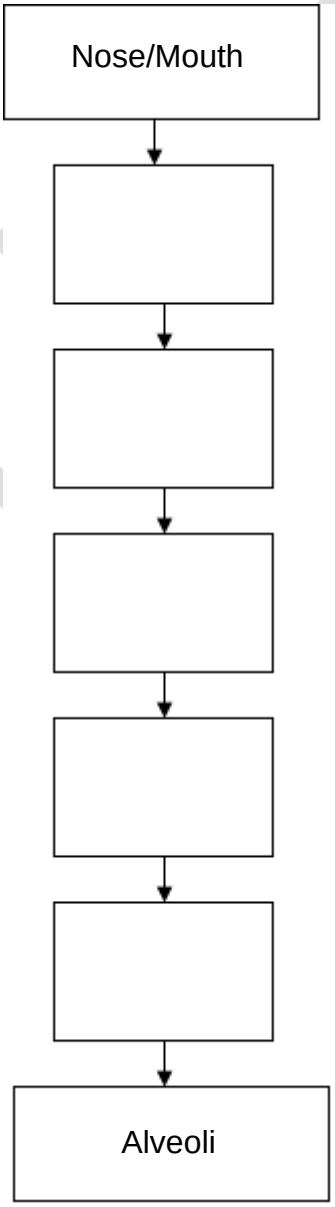
Answer **all** questions in the spaces provided.

9 (a) Complete **Figure 1** to show the pathway of air through the respiratory system.

Write the numbers from the list below in the boxes to show the correct order of the pathway.

1. Bronchi
2. Bronchioles
3. Larynx
4. Pharynx
5. Trachea

Figure 1



[5 marks]

9 (b) Explain the process of diffusion during gaseous exchange at the alveoli.

[4 marks]

9 (c) State what happens to tidal volume during exercise.

Give **two** reasons for this.

[3 marks]

What happens to tidal volume

Reason 1

Reason 2

10 (a) State the **main** function of skeletal muscle.

[1 mark]

10 (b) Describe the role of an antagonist muscle.

[1 mark]

10 (c) Complete **Table 1** by identifying the antagonist muscle for the different body actions.

[2 marks]

Table 1

Body action	Antagonist muscle
Extension of knee	
Flexion of elbow	

Please turn over for the next question.

11

Figure 2

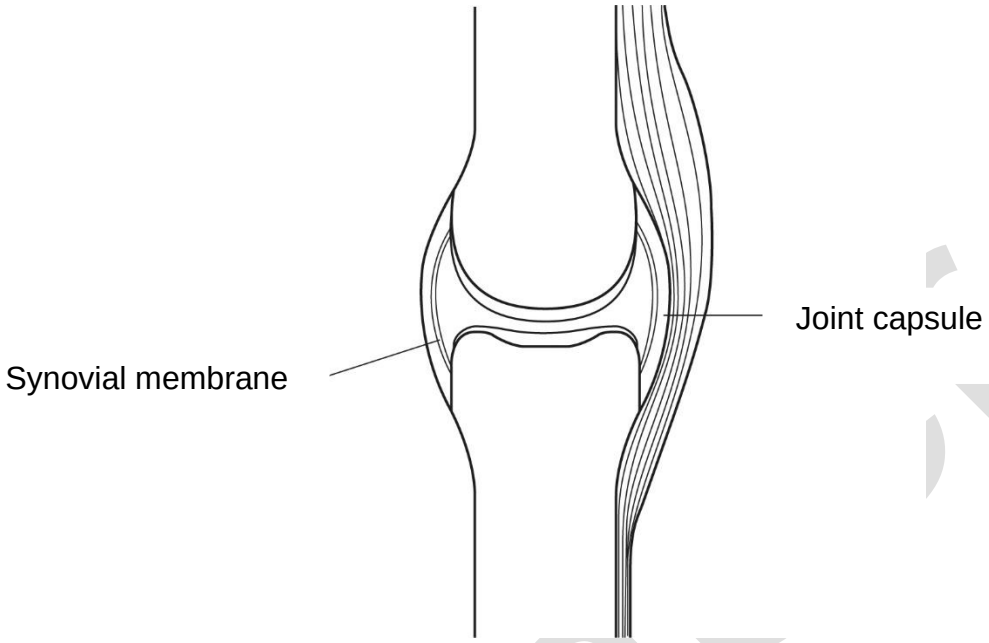


Figure 2 shows a knee joint with two of its structures identified.

Identify **three other** structures of the knee joint **and** explain how **each** structure could improve performance in health and fitness activities.

[6 marks]

Structure 1 _____

Explanation _____

_____

_____

Structure 2 _____

Explanation _____

_____

_____

Structure 3 _____

Explanation _____

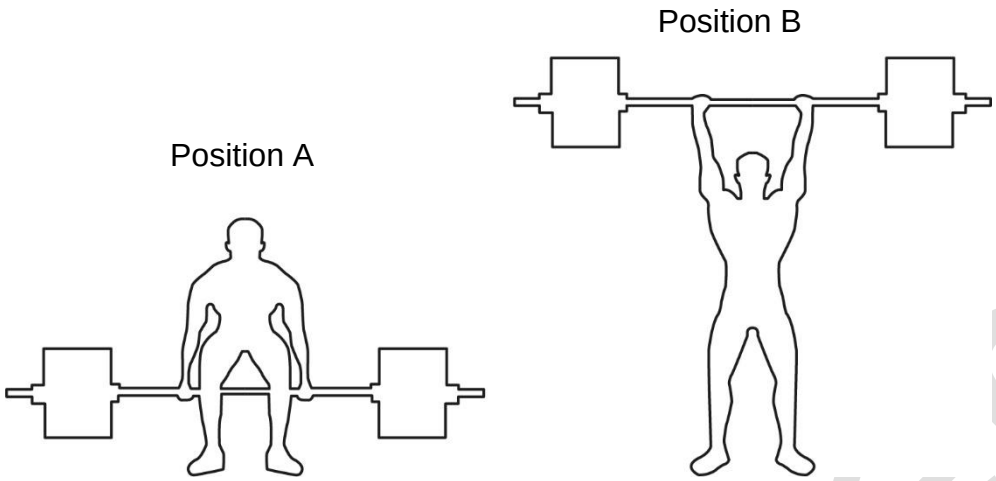
_____

_____

Please turn over for the next question.

12 (a)

Figure 3



Identify the type of strength needed for the individual to get from **Position A** to **Position B** in **Figure 3.**

Justify your answer.

[3 marks]

Type of strength _____

Justification _____

_____

_____

_____

_____

12 (b) Identify the type of strength that is needed for the individual to hold **Position B** in **Figure 3.**

Justify your answer.

[3 marks]

Type of strength _____

Justification _____

_____

_____

_____

_____

13 Define muscular endurance **and** speed **and** give **one** example of when you would use **each** in a health and fitness activity.

[4 marks]

Definition of muscular endurance _____

_____

Example _____

_____

Definition of speed _____

_____

Example _____

_____

14 Aerobic and anaerobic energy systems provide us with energy to participate in health and fitness activities.

Complete **Table 2** to identify **one** activity suitable for **each** energy system.

Give **two** justifications how the activity you have identified is suitable for the energy system.

[6 marks]

Table 2

Energy system	Activity suitable for the energy system	Justification
Aerobic		**1.** **2.**
Anaerobic		**1.** **2.**

15 Muscle attachment is a major function of bones in the skeleton. Below are three different types of bones:

- Long bone
- Sesamoid bone
- Irregular bone.

Identify **one** example of **each** bone **and** describe a function of that bone **other** than muscle attachment.

[6 marks]

Long bone example _____

Function _____

_____

_____

Sesamoid bone example _____

Function _____

_____

_____

Irregular bone _____

Function _____

_____

_____

Please turn over for the next question.

16 Identify **one** example of an eccentric muscle action from a health and fitness activity.

Justify your answer.

[3 marks]

17 Describe the following principles of training:
- Progression
- Reversibility.

[4 marks]

Progression

Reversibility

Please turn over for the next question.

Section 3

This section has a possible 21 marks.

You should spend about 30 minutes on this section.

Answer **all** questions in the spaces provided.

18 Analyse how an individual could use the FITT (Frequency, Intensity, Time, and Type) principles to improve their performance in a 5km run.

[6 marks]

19 Explain how the structure and function of arteries and veins help an individual taking part in health and fitness activities.

[6 marks]

20 Analyse how the functions of the skeletal system help an individual when they are participating in health and fitness activities.

[9 marks]

This is the end of the external assessment.

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