Natural Sciences · Grade 7

Memorandum · Term 4

TOTAL 40 MARKS

Marking guidelines

1. Award the full mark for a correct answer, even if the learner words it differently.
2. Accept any scientifically correct answer, including one not given in the memorandum.
3. Where a question asks for two or more items, award one mark per correct item.
4. For diagrams, award the mark if the label points at the correct part, even with a spelling error.
5. Do not deduct marks for spelling unless the word takes on a different scientific meaning.

Question	Answer	Marks	Marking note
QUESTION 1 · Multiple choice · 4 marks			
1.1	b. the tilt of the axis	**1**	
1.2	a. June	**1**	
1.3	a. move further apart	**1**	
1.4	b. one full moon to the next full moon	**1**	
QUESTION 2 · Matching · 4 marks			
2.1	1 = B (gravity); 2 = D (orbit); 3 = E (Kepler); 4 = A (tides)	**4**	*1 mark each.*
QUESTION 3 · Terminology · 2 marks			
3.1	Hemisphere; One day (also accept: 24 hours)	**2**	*1 mark each.*
QUESTION 4 · Diagrams · 7 marks			
4.1	1 mark: the Sun and the Earth drawn, with the axis as a straight line through the centre of the Earth. 1 mark: the axis is tilted (not vertical; about 23,5°). 1 mark: the South Pole end leans TOWARDS the Sun (southern summer) and both poles are labelled.	**3**	*1 mark each.*

Question	Answer	Marks	Marking note
4.2	a. New Moon (1). b. The high tides are higher than usual and the low tides are lower than usual: spring tides (1). Accept 'spring tides' alone. c. The Sun's gravity pulls in the same line as the Moon's gravity (1), so the two pulls add together and pull the sea water more strongly (1).	**4**	*1 mark for a, 1 for b, 2 for c.*
QUESTION 5 · Longer questions · 6 marks			
5.1	The Earth's axis is tilted about 23,5°. When the Southern Hemisphere tilts towards the Sun, the rays fall more steeply and directly, so the energy is concentrated on a smaller area and the days are longer — summer. At the same time the Northern Hemisphere tilts away and gets slanted rays over a larger area — winter.	**4**	*1 mark per point.*
5.2	They take millions of years to form (1); people use them much faster than they are formed (1).	**2**	*1 mark per point.*
QUESTION 6 · The Moon, the sea and the history of astronomy · 10 marks			
6.1	The Moon's gravity pulls the sea water towards it, so the sea bulges on the side nearest the Moon (and on the opposite side). As the Earth spins, each coast gets high and low tide about twice a day.	**2**	*1 mark for the Moon's gravity, 1 for the bulge or twice a day.*
6.2	a. The Earth's gravity (1). b. The Sun's gravity (1). c. The Sun has a very much bigger mass, and more mass means a stronger pull (1).	**3**	*Give the mark for a and b only if the learner says whose gravity.*
6.3	The area between the high-water and low-water marks is covered by the sea and then left in the air about twice a day, so only plants and animals adapted to both conditions live there (1). Any one: mussels; limpets; barnacles; sea anemones; starfish; periwinkles; red bait; seaweed (1).	**2**	*1 mark for the explanation, 1 mark for the plant or animal.*
6.4	Copernicus (also accept: Aristarchus). Do not accept Galileo — he supported the idea but did not propose it.	**1**	
6.5	He saw moons orbiting Jupiter — so not everything orbits the Earth. He also saw the phases of Venus, which fit Venus orbiting the Sun.	**2**	*1 mark for Jupiter's moons, 1 for the explanation.*

Question	Answer	Marks	Marking note
QUESTION 7 · The Earth, the sky and the Sun's energy · 7 marks			
7.1	Rotation is when the Earth spins on its own axis — it takes 24 hours and gives us day and night. Revolution is when the Earth travels once around the Sun — it takes about $365\frac{1}{4}$ days and gives us a year and the seasons.	**4**	*1 mark per movement, 1 mark per length of time.*
7.2	Any one: to know when to plant (or harvest) crops; to find direction; to fix special or holy days; in stories passed on to children (1).	**1**	*Do not accept 'to measure time / make calendars' — that is given in the stem.*
7.3	Plants absorb sunlight and use its energy to make food (1); animals eat plants, or eat animals that ate plants, so the energy in all food comes from the Sun (1).	**2**	*1 mark per point.*

Total **40 marks**



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