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Environmental Studies ENVS2

(Specification 2440)

Unit 2: The Physical Environment

Report on the Examination

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General

This proved to be an accessible examination with the overwhelming majority of students attempting almost all question sections. The questions discriminated well between students of different abilities, with a wide range of total marks being awarded.

Question 1

This was well answered, with about 70% getting 3 or more marks. The most common errors were to give an incorrect formation process or an insignificant use.

Question 2

(a) Most students gained full marks. A common misunderstanding was that the meter sets a limit on the total amount of water that can be used.

(b) Over 50% of students gained both marks. A significant minority could not explain why toilet design or grey water use reduced the amount of water used.

(c) This was not well answered with over 50% of the students gaining a mark of 1 or 0. In previous papers, students have scored well on explaining how water abstraction, treatment or use cause environmental damage. The concept that reducing water use can reduce any of these is obviously less well understood.

Question 3

(a) (i) &(ii) Over 30% of students scored 0. Most students could name the form of energy involved, but not necessarily where it comes from and therefore how it creates temperature changes as the altitude changes.

(b) About 50% of students understood that water vapour from the troposphere cannot reach the stratosphere because the temperatures in the upper troposphere are too low.

(c) (i) &(ii) These sections were well understood with nearly 50% of students scoring full marks in each section. Descriptions of chemical reactions and the role of UV light were often very good.

Question 4

(a) Most students gained both marks by referring to melting land ice and thermal expansion.

(b) Most students scored 1. The most common correct answer was reference to coastal erosion, other talked about flooding of other areas causing access difficulties or population relocation and overcrowding.

(c) Most students gained 2 marks. The most common mistake was to give confused descriptions of competition.

(d) Students that understood what a positive feedback mechanism is scored high marks, 3 being the most common score. However, nearly 25% scored 0 because they had no understanding of the issue. The most common error was to confuse ‘positive’ with ‘good’.

Question 5

(a) This was surprisingly poorly answered. While most referred to a positive correlation, or described it, barely 10% could describe the change in slope. Most gave a description of a slow rate of rise then a sudden increase.

(b) (i) &(ii) These questions were not well answered, with nearly half the students scoring 0. The concept that the ability of an onshore wind to deliver rain depends on the temperature of the ocean it blows over was not well understood.

(c) A minority of students gave good answers. The best answers gave descriptions of melting land ice reducing the salinity of the sea, reducing its density, reducing its ability to sink and therefore reducing or preventing the returning deep current.

Question 6

(a) (i) &(ii) Only about 30% of students gained any marks for part (i) by showing an understanding of the use of standard deviation, yet over 75% gained the mark for part (ii).

(b) Nearly 50% of students scored 2 or 3 marks. The most common misunderstanding was that the drainage rate would affect the amount of irritant solution required. A significant minority did not understand the term texture.

(c) (i) Most students gained a mark. Most incorrect answers gave the depth at which no worms were found, rather than the depth where one worm was found.

(c) (ii) Almost every student scored the mark.

(c) (iii) Most students scored one mark, but few scored both marks. Answers were generally vague, with few using precise descriptions of features such as compaction or food availability.

Question 7

(a) (i) Most students scored 2 or 3 marks. The best answers referred to specific water quality features and why they would be an advantage or disadvantage.

(a) (ii) This was well answered with most students giving two correct treatment processes, with about half of those getting the additional marks for describing them correctly.

(b) The effect of water quality on industrial use has been poorly understood in previous examinations. It was better understood in this examination with many students giving specific industrial uses and quality requirements. Some students referred to water use in power stations, but could not be awarded marks because they did not give the specific use which determines the quality needed: steam water being very pure with no dissolved minerals, while condenser or cooling water can be low quality, only being treated to remove larger solids.

Question 8

(a) (i) Most students were clearly well prepared for this question, with just over 50% of students scoring full marks with good descriptions of how a Tüllgren funnel works. Some described hand sorting.

(a) (ii) This was not quite as well answered as part (i). 30% of students scored 0. Better answers referred to organisms that are unaffected by heat and light, are immobile or do not pass through the grill below the soil.

(b) (i) This produced an even spread of marks with roughly one third scoring 0, 1 or 2. Some gave precise descriptions of how a named soil feature affected the numbers of detritivores. Others only selected a feature without stating how it affected detritivore numbers.

(b) (ii) The greatest proportion of students scored 2 marks. Only the best answers linked oxygen level to organic matter, either to the rate of decomposition or the biomass of living organisms and the dead organic matter they produce.

Question 9

(a) This was generally well answered, with many students including the names of bacteria involved.

(b) (i) &(ii) Almost all students correctly named nitrogen in the atmosphere as the main reservoir in the nitrogen cycle. About 50% of students correctly named the lithosphere as the main reservoir of phosphorus.

(c) This question discriminated well between students of differing abilities, with a fairly even spread across all marks. The better students gave well-structured answers, naming a human activity then developing this with one or two specific, descriptive points. They also included correct technical terms and referred to specific taxa.

Mark Ranges and Award of Grades

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