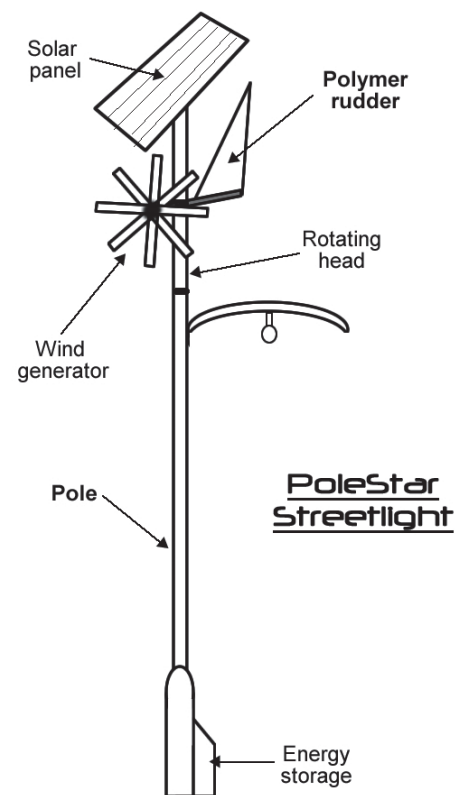


The following questions are based on the pre-released case study which you have already prepared for.

Jean has designed a wind and solar powered streetlight called Polestar and, although the idea is not new or novel, the design and looks of the product are her own work. Jean's husband has offered to help and has suggested that Jean should protect her Polestar design by looking on the Internet to find out how this is done.

Jean and her husband will research the process of manufacturing the product; they will look at the existing market place and identify the competition.

One of Jean's requirements is that the company that manufactures her product is environmentally friendly.



Instructions

You are required to investigate the viability of the Polestar product. Your study should identify the steps Jean will need to undertake if the Polestar product is to be a success. Your study should include investigating the following areas:

- intellectual property
- research and development
- social and environmental impact
- financial support
- suitability of materials for manufacture of the pole and polymer rudder
- potential impact on the home, workplace and built environment



Answer ALL the questions. Write your answers in the spaces provided.

1. (a) On the left are four types of intellectual property. On the right is a description of how each offers protection (as identified by the UK Patent Office). Draw straight lines to connect each type of intellectual property to the correct description.

Type	Description
Designsprotect material such as literature, art, music, sound recordings, films and broadcasts.
Copyrightsprotect signs or symbols that can distinguish the goods and services of one trader from those of another.
Patentsprotect the visual appearance or 'eye appeal' of products.
Trade Marksprotect the technical and functional aspects of products and processes.

(4)

- (b) (i) State which intellectual property type Jean should use to protect her Polestar idea.

.....
(1)

- (ii) Explain why she should use this type of intellectual property.

.....
.....
(2)

- (c) Explain the advantages of registering intellectual property for the Polestar product.

.....
.....
.....
.....
(3)

(Total 10 marks)

Q1

--	--



Leave blank

2. Before Jean launches her Polestar product she needs to carry out various activities.

(a) List **four** different organisations or individuals that could help Jean raise funds to support her idea.

1

2

3

4

(4)

(b) State **three** different tests that could be performed on the streetlight to make sure it will perform as expected before mass production begins.

1

2

3

(3)

(c) Explain why it is necessary to undertake market research before launching a product.

.....

.....

.....

.....

.....

(3)

(Total 10 marks)

Q2



Leave
blank

3. Jean wants her streetlight made from suitable materials.

(a) Suggest a suitable material for the manufacture of the pole that will hold the streetlight.

.....
(1)

(b) State **two** appropriate properties of your chosen material for the pole.

1

2

(2)

(c) List **three** benefits to the manufacturer of using your chosen material for the pole.

1

2

3

(3)

(d) Explain **one** engineering mass production process that could be used when manufacturing the polymer rudder.

.....

.....

.....

.....

.....

.....

(4)

(Total 10 marks)

Q3

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4. Polestar is a solar and wind powered streetlight.

(a) In the table below identify a different advantage and disadvantage for both types of power technologies when used in the built environment.

	Advantage	Disadvantage
Solar power		
Wind power		

(4)

(b) Explain **three** positive impacts these technologies have on the environment.

- 1
-
-
- 2
-
-
- 3
-
-

(6)

(Total 10 marks)

Q4



Leave
blank

5. Jean is very conscious that the manufacture of the streetlight should be environmentally friendly. Jean wants to make sure that the production factory she chooses operates in this way.

(a) Suggest **three** questions Jean could ask potential production factories to help her decide which one she should use.

First question

.....

Second question

.....

Third question

.....

(6)

(b) Explain **two** positive social impacts of using Jean's streetlight.

1

.....

2

.....

(4)

Q5

(Total 10 marks)

7

Turn over



Leave blank

6. Taking any new product from initial idea to the end user will have an impact on the environment. Consider each item below and explain what the impact on the environment could be, and how it may be reduced.

(a) Protective packaging and assembly documentation.

(i) Impact

.....

.....

(ii) Reduction

.....

.....

(5)

(b) Distribution of the product to the end user.

(i) Impact

.....

.....

(ii) Reduction

.....

.....

(5)

Q6

(Total 10 marks)

TOTAL FOR PAPER: 60 MARKS

END

