Physics 153 Exam 1 (practice exam 2017)

**Time: 50 minutes**

**Total points: 50**

**Name:**

|  |  |  |
| --- | --- | --- |
| **Score**  |  | **Score**  |
| **1**  |  | **6**  |  |
| **2**  |  | **7**  |  |
| **3**  |  | **8**  |  |
| **4**  |  | **9**  |  |
| **5**  |  |  |  |
|  |  |  |  |
|  |  | **Total**  |  |

Question 1. (3)

What is the scientific definition of a wave? (1)

What did scientists originally think the medium for a light wave was? (1)

What is the actual medium for a light wave? (1)

Question 2. (6)

Briefly explain how Young proved that light was a wave phenomenon. (2)

What would he have seen if light was instead made up of particles? (2)

Name the phenomenon that generates bright and dark lines on the edges of narrow slits when light is shone through. (2).

Question 3. (6)

For each of the following pairs of waves, state which has the longer wavelength:

Ultraviolet or Gamma rays? (2)

X rays or Gamma rays? (2)

Visible or infra red? (2)

Question 4. (4)

Name the type of electromagnetic wave used in the following technologies:

1. Cell phone communication. (1)

1. Lie detection. (1)

1. TV remote controls. (1)

1. Weather forecasting. (1)

Question 5. (7)

What characteristic of light waves allows the human eye to see them? (2)

Name a circumstance when light emerges FROM the eye? (2)

What characteristic of light determines its brightness? (2)

Name a life-form that can see infra-red waves. (1)

Question 6. (3)

Explain why bioluminescence is not incandescent. (1)

Give two examples of bioluminescence. (2)

Question 7. (7)

What absorbs UV in the Earth’s atmosphere? (2)

Which type of UV causes sunburn? (2)

Why doesn’t a shark get sunburn? (2)

Name the phenomenon that converts UV into visible waves. (1) Question 8. (9)

When you look up at the night sky why does it appear dark? (2)

Give an example of an atmospheric phenomenon that is incandescent. (2)

Give an example of an atmospheric phenomenon that is not incandescent. (2)

Briefly explain how a large amount of carbon dioxide in the atmosphere might impact life on Earth. (3)

Question 9: (5)

Give an advantage of using a radio telescope rather than an optical telescope. (2)

Give an advantage of using an optical telescope rather than a radio telescope. (2)

Why can’t you see stars during the day? (1)