

SURNAME: Ling

FORENAME(S): Scott

12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	1810357
2	Title of Examination Paper	Electromagnetic Radiation
3	Module Code	Acda500a
4	Date and Time of Examination	3-4-2022 10am
5	Examination Venue	
6	Seat Number	Room 302a
7	Number of Answer Books handed in	

[illegible]

- 1
- a) b)
 Radiowaves - Produces a current in a conductor
 Microwaves - Induces heat
 Infrared - Induces heat in conductors + non conductors
 Visual - Can be seen by human eye
 Ultra violet - Can't be seen and harmful
 X-ray - Ionised photons
 Gamma - Nuclei (2) 5
- c) Refraction - wave lengths bounce back (1)
- d) diffraction - ~~wavelengths are scattered~~
 can bend round corners. 1
- e) dispersion - wavelengths are dispersed at all angles. 1
- f) specular reflection - (1)
- g) diffuse reflection - (1)
- h) transmission - passing of wavelengths without absorption. 1
- i) absorption - absorbing of wave lengths when passing through. (1)

Q1 = 15

3

f) white shipping Containers have a lower absorption Rate where as green shipping Containers will absorb all wave lengths. (-2)

4

a) Duplex \ Cost
~~the~~ secure \
 Reliability \
 higher data transfer \
 thickness + diameter \

(-2)

6

b Multi Step Mode - Multiple data - expensive



(-6)

Multi step graded - Multiple data - expensive



Mono Mode - Single data mode - Cheap



c) Mono mode
 cheaper.

(-5)

Q4 = 9

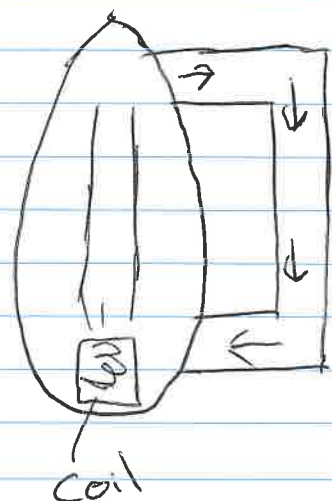
3

5)

- a crystallography
non destructive testing
flush xray imaging

(-1)

b)



(-3)

- c) the inside electron is knocked out from the inner shell and is replaced by an electron from the outer shell.

(-2)

- d) is where an charged Particles pass through an object.

Inverse Relationship

(-2)

- e) Atomic Mass + Number
density
thickness.

(-1)

f

(-4)

a)

a Nuclear explosion generates an electromagnetic pulse due to charged electrons being ~~being~~ released due to the Compton effect. this causes an electrically charged field.

(-2)

Q5 = 11

1

3

1

2

(4)

6)

a) length
other wise
Magnet strength

 (-8)

2

B)

Acting force would be 1 Newton

5

c)

 (-5) $Qb = 7$