Tear Here

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
PHYSICS

ANSWER SHEET

Student ..... Light Key ..... Sex: ☐ Male ☐ Female Grade .....

Teacher ..... School .....

Record your answers to Part A and Part B–1 on this answer sheet.

Part A

1 ..... 1 .....
2 ..... 2 .....
3 ..... 4 .....
4 ..... 2 .....
5 ..... 2 .....
6 ..... 2 .....
7 ..... 4 .....
8 ..... 3 .....
9 ..... 3 .....
10 ..... 4 .....
11 ..... 2 .....

Part A Score ☐

Part B-1

12 ..... 2 .....
13 ..... 4 .....
14 ..... 2 .....

Part B-1 Score ☐

Write your answers to Part B–2 and Part C in your answer booklet.

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature

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REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
PHYSICS

ANSWER BOOKLET

Student ..... Sex: ☐ Male ☐ Female

Teacher .....

School ..... Grade .....

Answer all questions in Part B–2 and Part C. Record your answers in this booklet.

Part	Maximum Score	Student's Score
A	11	
B–1	3	
B–2	12	
C	13	

Total Written Test Score (Maximum Raw Score: 39) ☐

Final Score (From Conversion Chart) ☐

Raters' Initials:

Rater 1 ..... **Rater 2** .....

Part B–2

For Raters Only

15-16

G

$n_1 = 1.33$

$n_2 = 1$

$\theta_1 = 40°$

U

θ_2

$n_1 \sin\theta_1 = n_2 \sin\theta_2$

$1.33 \sin 40° = 1 \sin\theta_2$

$.855 = \sin\theta_2$

$\sin^{-1}(.855) = \theta_2$

$\boxed{\theta_2 = 58.75°}$

15 ☐

16 ☐

17-18

G

$n = 1.33$

$C = 3 \times 10^8$ m/s

U

V

$n = \frac{C}{V} \Rightarrow V = \frac{C}{n}$

$V = \frac{3 \times 10^8 \text{ m/s}}{1.33}$

$\boxed{V = 2.26 \times 10^8 \frac{\text{m}}{\text{s}}}$

17 ☐

18 ☐

[OVER]

For Raters Only

19-20

G

$n_1 = 1.33$

$\theta_1 = 45°$

$\theta_2 = 29°$

U

n_2

$n_1 \sin\theta_1 = n_2 \sin\theta_2$

$1.33 \sin 45° = n_2 \sin 29°$

$.9404 = n_2 (.4848)$

$\boxed{n_2 = 1.94}$

19 ☐

20 ☐

21 Zircon

21 ☐

22 40 ± 2 °

22 ☐

23-24

G

$\theta_1 = 40°$

$\theta_2 = 20°$

$n_1 = 1$

U

n_2

$n_1 \sin\theta_1 = n_2 \sin\theta_2$

$\frac{1 \sin(40°)}{\sin 20°} = \frac{n_2 \sin(20°)}{\sin 20°}$

$\boxed{n_2 = 1.88}$

23 ☐

24 ☐

25-26

G

$n = 1.88$

$C = 3 \times 10^8 \frac{m}{s}$

U

V

$n = \frac{C}{V} \Rightarrow V = \frac{C}{n}$

$V = \frac{3 \times 10^8 \frac{m}{s}}{1.88}$

$\boxed{V = 1.6 \times 10^8 \frac{m}{s}}$

25 ☐

26 ☐

Part C

27 37 ± 2 °

28-29

G	U
$n_1 = 1.33$	θ_1
$n_2 = 1.66$	
$\theta_2 = 37°$	

$$n_1 \sin\theta_1 = n_2 \sin\theta_2$$

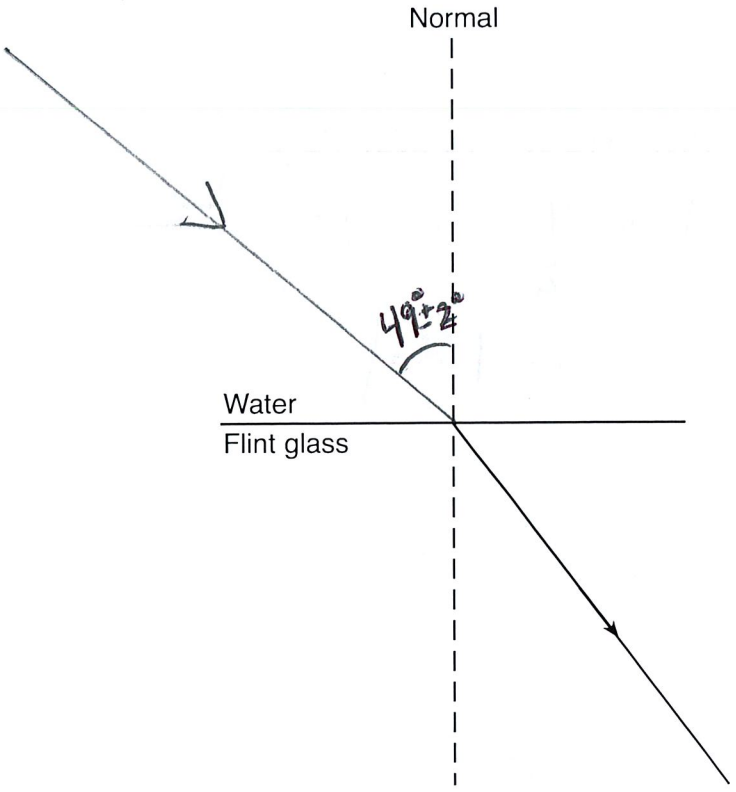
$$\frac{1.33 \sin\theta_1}{1.33} = \frac{1.66 \sin 37°}{1.33}$$

$$\sin\theta_1 = .751$$

$$\theta_1 = \sin^{-1}(.751)$$

$$\boxed{\theta_1 = 48.69°}$$

30



31 Reflection

32 34±2 °

32 ☐

33–34

33 ☐

34 ☐

G U

$n_1 = 1$ n_2

$\theta_1 = 60°$

$\theta_2 = 34°$

$n_1 \sin\theta_1 = n_2 \sin\theta_2$

$\frac{1\sin(60°)}{\sin 34°} = \frac{n_2 \sin(34°)}{\sin 34°}$

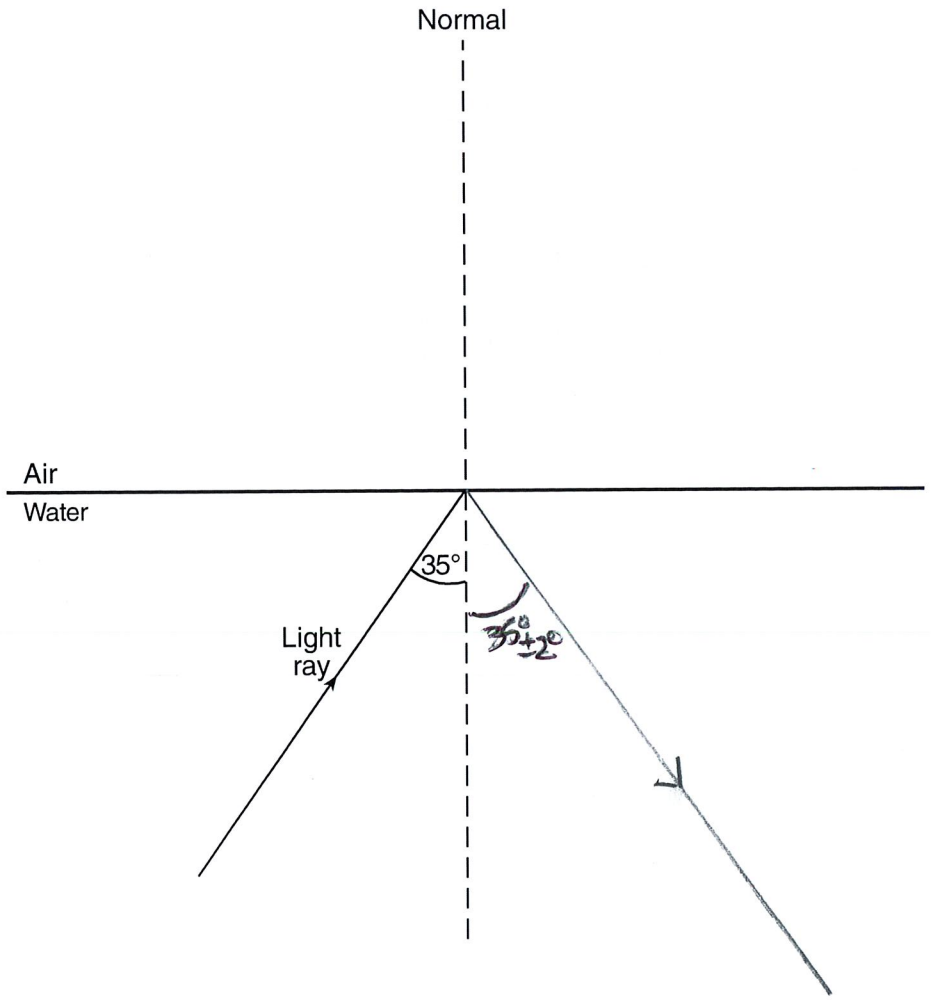
$\boxed{n_2 = 1.55}$

35 35 °

35

36

36



37

37-38

G

$n_1 = 1.33$

$n_2 = 1$

$\theta_1 = 35°$

U

θ_2

38

$n_1 \sin\theta_1 = n_2 \sin\theta_2$

$1.33 \sin 35° = 1 \sin\theta_2$

$\theta_2 = \sin^{-1}(.763)$

$\theta_2 = 49.72°$

39 frequency

39