# اختبار مطابق لمخرجات الهيكل الوزاري الجديد منهج انسباير القسم الالكتروني

Term 1

2026-2025

# MOCK EXAM

# EOT1 COVERAGE EXAM FOR GRADE 11 ADVANCED PHYSICS

Einstein_AE



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| Whenever necessary, use the following physical formulas. | | |
|---|---|---|
| **Module 15: Fundamentals of Light** | **Module 16: Reflection and Refraction** | |
| | **Reflection and Mirrors** | **Refraction and Lenses** |
| $E = \frac{P}{4\pi r^2}$ | $\theta_i = \theta_r$ | $\sin\theta_c = \frac{n_2}{n_1}$ |
| | | $n = \frac{c}{v}$ |
| $I_2 = I_1 \cos^2\theta$ | $f = \frac{r}{2}$ | $n_1 \sin\theta_1 = n_2 \sin\theta_2$ |
| $f_{obs} = f(1 \pm \frac{v}{c})$ | $\frac{1}{f} = \frac{1}{x_i} + \frac{1}{x_o}$ | $\frac{1}{f} = \frac{1}{x_i} + \frac{1}{x_o}$ |
| $(\lambda_{obs} - \lambda) = \Delta\lambda = \pm\frac{v}{c}\lambda$ | $m = \frac{h_i}{h_o} = -\frac{x_i}{x_o}$ | $m = \frac{h_i}{h_o} = -\frac{x_i}{x_o}$ |
| **Whenever necessary, use the following physical constants.** | | |
| $c = 3 \times 10^8$ m/s | | |

**This exam is fully aligned with the learning outcomes outlined in EOT1 coverage – Grade 11 Advanced Physics (INSPIRE). It includes questions that follow the official ministry format and incorporates examples from previous years' exams to ensure comprehensive coverage and practice on ministry-style questions. The exam is designed to reflect the same structure, level of difficulty, and question types found in standardized assessments, providing students with an authentic and realistic training experience.**

**Prepared by Mr. Abdelrahman Essam Eid, Physics Teacher, United Arab Emirates.**

هذا الاختبار مطابق تمامًا لمخرجات التعلم الواردة في *EOT1 coverage* – *الصف الحادي عشر فيزياء متقدم (INSPIRE)* .

يحتوي على أسئلة تتبع نمط الوزارة ، ويشمل أمثلة من اختبارات السنوات السابقة لضمان تغطية شاملة والتدريب على أفكار الوزاري.

تم تصميم الاختبار ليعكس نفس الهيكل ومستوى الصعوبة وأنواع الأسئلة الموجودة في الاختبارات القياسية، مما يوفر للطلاب تجربة تدريبية واقعية.

اعداد أستاذ عبد الرحمن عصام عيد مدرس الفيزياء الامارات العربية المتحدة

### 1. the transmission of light through different media

Materials that do not allow any transmission of light are described as ____.

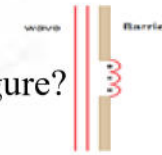
ⓐ transparent ⓑ luminous ⓒ translucent ⓓ opaque

### 2. the speed of light in vacuum

In 1987, a supernova was observed in a neighboring galaxy. Scientists believed the galaxy was $1.66\times10^{21}$m away.
How many years prior to the observation did the supernova explosion actually occur?

ⓐ $5.53\times10^{12}$yr ⓑ $1.74\times10^{20}$yr ⓒ $5.53\times10^{3}$yr ⓓ $1.75\times10^{5}$yr

### 3. The bending of a wave



What is the **name of the phenomenon** of the waves after passing the barrier in the figure?

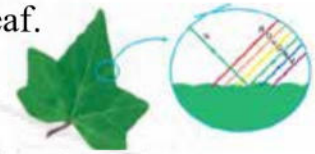
ⓐ Reflection ⓑ Diffraction ⓒ Polarization ⓓ Refraction

### 4. The color of light

Which of these colors of light has **higher frequency of Color.**

ⓐ Red ⓑ Green ⓒ Black ⓓ Violet

### 5. The pigments and dyes



White light (composed of its seven color components) falls on a green leaf.
Which of the following statements describes what happens?

ⓐ The eye sends a ray toward the leaf, which reflects it back, so it appears green.

ⓑ The pigment molecules in the green leaf absorb the green light and reflect all the other colors.

ⓒ The pigment molecules in the green leaf absorb all the colors and reflect only green light.

ⓓ The pigment molecules absorb all the colors, so the leaf appears light-colored.

### 6. the polarization of light by reflection.

When you wear polarized sunglasses, the Sun's light intensity to your eyes is

ⓐ Reduced by 1/4 ⓑ Cut in half ⓒ Completely eliminated ⓓ Doubled

### 7. wavelength and frequency.

What is the wavelength of blue light that has a frequency of $6.66\times 10^{14}Hz$

ⓐ $2.22\ x\ 10^{6}m$ ⓑ $4.5\ x\ 10^{-7}m$ ⓒ $4.5\ x\ 10^{-21}m$ ⓓ $2.22\ x\ 10^{21}m$

### 8. The Doppler Effect.

An astronomer observes a wavelength of 510 nm. The actual wavelength at the source is 486 nm. The galaxy is moving away at a speed of about

ⓐ $1.48 \times 10^{7}$ m/s ⓑ $4.55 \times 10^{7}$ m/s ⓒ $2.58 \times 10^{7}$ m/s ⓓ $3.41 \times 10^{7}$ m/s

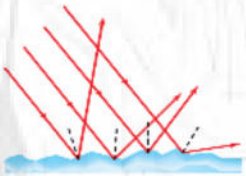
### 9. the law of reflection.

As shown in the figure. Which of the following formulations correctly expresses the values of Incident angle $\theta i$ and reflection angle $\theta r$ ?


ⓐ $\theta i = \theta r = 50°$ ⓑ $\theta i = \theta r = 80°$ ⓒ $\theta i = \theta r = 40°$ ⓓ $\theta i = 50°, \theta r = 40°$

### 10. Types of reflection

As shown in the figure, light falls on a reflecting surface. Which of the following statements is incorrect?



ⓐ The angle of incidence for each ray equals its angle of reflection.
ⓑ The reflecting surface is rough.
ⓒ The figure shows diffuse reflection.
ⓓ All reflected light can be seen.

### 11. the properties of an image formed by a plane mirror

Which of the following is a characteristic of the image formed by a plane mirror?

ⓐ Real, upright, and same size as the object
ⓑ Real, inverted, and smaller than the object
ⓒ Virtual, inverted, and smaller than the object
ⓓ Virtual, upright, and same size as the object

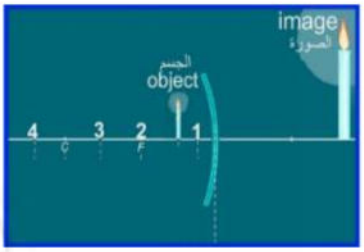
### 12. image formed by a plane mirror

Salam, who is 1.5 m tall, stands 0.5 m away from a plane mirror and sees his image as shown in the figure. What is the type of image and how far is it from Salam?

ⓐ Virtual, 1.0 m
ⓑ Real, 0.5 m
ⓒ Virtual, 1.5 m
ⓓ Virtual, 0.5 m

### 13. image formed by concave mirror

Where should the object be positioned, as shown in the figure, such that its image appears enlarged in front of the concave mirror.




ⓐ Position 2 ⓑ Position 3

ⓒ Position 1 ⓓ Position 4

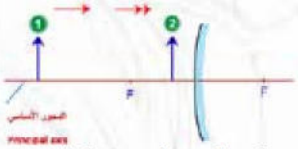
### 14. Relate the focal length to the radius.

A concave mirror has a radius of curvature of 15.0 cm. What is its focal length?

ⓐ –30.0 cm ⓑ –7.5 cm ⓒ +7.5 cm ⓓ +30.0 cm

### 15. The image of an object

When an object is placed in front of a convex mirror at position (1) as shown in the figure, an upright, virtual, and reduced image is formed by the mirror.
As the **object moves closer** to the mirror to position (2), what **happens** to the **image**?




ⓐ The image becomes inverted, virtual, and reduced. ⓑ The image becomes upright, real, and enlarged.

ⓒ The image remains upright, virtual, and reduced. ⓓ The image becomes inverted, real, and enlarged.

### 16. the index of refraction

The table below shows the indices of refraction for yellow light ($\lambda = 589$ nm) in three different mediums:
In which of these mediums does yellow light have the **greatest speed**?

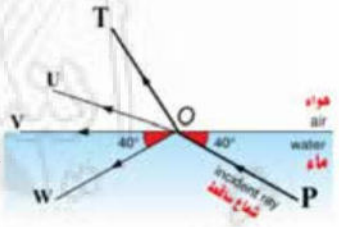
| Medium | Index of Refraction (n) |
|---|---|
| **Ethanol** | 1.36 |
| **Float Glass** | 1.52 |
| **Diamond** | 2.42 |

ⓐ Diamond ⓑ Ethanol

ⓒ Float Glass ⓓ Have same speed in the four mediums

### 17. total internal reflection

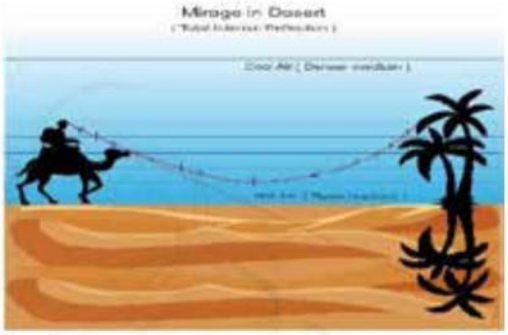
The figure shows a ray of light **(PO)** passing from water into air.
Given the refractive indices of water and air: $n_{water} = 1.325$, $n_{air} = 1$
Which is the **correct path of the ray**?




ⓐ POV ⓑ POU

ⓒ POW ⓓ POT

### 18. natural phenomena




Consider the following natural phenomena:

1. Terrestrial heating
2. Reflection of light
3. Refraction of light
4. Diffraction of light
5. Total internal Reflection

Which of the above phenomena are responsible for the formation of a **mirage**?

ⓐ 3 and 4 ⓑ 1 and 3 ,5

ⓒ 2 and 3 ⓓ 1 and 2

### 19. defects in spherical lenses

Which of the following statements is **true** about the **spherical aberration** of lenses?

ⓐ It can only be seen with concave lenses

ⓑ Inability of a spherical lens to focus all parallel rays to a single point

ⓒ This is seen as an apparent ring of color around an object viewed through a lens

ⓓ All parallel rays focus on the same position

### 20. The defects in vision

**Objects at a distance to a person are blurred.**
**What is the name of a person's visual defect and what type of lens is used to correct it?**

| | Defect Name | Type of Lens Used to Correct |
|---|---|---|
| ⓐ | Near-sightedness | Concave lens |
| ⓑ | Near-sightedness | Convex lens |
| ⓒ | Farsightedness | Convex lens |
| ⓓ | Farsightedness | Concave lens |