

SEETA HIGH Physics Seminar Paper - Answers (Items 1-5)

Item 1: Learners' Observations on the Road

- (a) Sound reduced due to Doppler Effect.
- (b) Mirage was due to refraction in hot air layers.
- (c) Rainbow observed due to dispersion of light in droplets.
- (d) Pool appeared shallow due to refraction of light.

Item 2: Music Gala Observations

- (a) Color changed due to lighting/filter effects.
- (b) Delay shows speaker was 16 meters away.
- (c) Echo caused second voice; minimized by curtains.

Item 3: Hotel Construction Advice

- (a) Refraction causes deceptive look.
- (b) Soft materials absorb echoes in hall.
- (c) White light ensures accurate color perception.
- (d) Use of mirrors/cameras with light-reflecting materials.

Item 4: Sound Broadcasting and Radio Frequency

- (a) Current: sound waves; Proposed: radio waves.
- (b) Radio waves avoid noise pollution.
- (c) Radio waves travel far at light speed.
- (d) Wavelength = 3.42 m for 87.8 MHz frequency.

Item 5: Leak Detection Using Radioactivity

- (a)(i) Half-life = 10 minutes.
- (a)(ii) Appropriate to use now.
- (b)(i) Detector identifies radiation at leak point.
- (b)(ii) Short half-life reduces risk.