# PHYSICS BEHIND PHENOMENA

Akankshya Anandita Nayak and Prasanta Kumar Sahoo

**1. Animals like water bugs can walk on water but humans cannot. Which property of water helps insects to move on water?**
a. Buoyancy
b. Surface tension
c. pH
d. Latent heat

**2. Bats are one of the few mammals that can use sound to navigate — a trick called echolocation. Echolocation calls are usually:**
a. Ultrasonic (20-200 kilohertz)
b. Infrasonic (less than 20 kilohertz)
c. Audible (20 hertz- 20 kilohertz)
d. All of the above

**3. A fuse (generally made of aluminium, copper, etc.) is a safety device consisting of a strip of wire that melts and breaks an electric circuit if the current exceeds a safe level. It has:**
a. High resistance, low melting point
b. Low resistance, high melting point
c. High resistance, high melting point
d. Low resistance, low melting point

**4. All of us would have seen a rainbow, a multicoloured arc on the sky during rainy seasons. The principal optical phenomenon involved in rainbow formation is:**
a. Diffraction of light
b. Dispersion of light
c. Diffusion of light
d. All of the above

**5. Thermometer is a device used to measure temperature. Most of the thermometers use mercury (a red metallic liquid) to show the temperature because it has:**
a. High boiling point
b. Low coefficient of expansion
c. High coefficient of expansion
d. High melting point

**6. A tube light uses fluorescence (emission of light by a substance that has absorbed light or other electromagnetic radiation) to produce visible light. A tube light uses:**
a. Mercury vapour to produce fluorescence
b. Mercury vapour to convert UV light into visible light
c. Phosphor coating to produce UV light
d. All of the above

**7. When the Sun, Moon and Earth come into a straight line an eclipse occurs. When the Moon comes between the Sun and the Earth, shadow of the Moon falls on part of the Earth. This is known as:**
a. Blood Moon
b. Full Moon
c. Lunar Eclipse
d. Solar Eclipse

**8. On a clear, dark night, our eyes can see about 6,000 or so stars in the sky. They seem to twinkle, or change their brightness, all the time. Stars appear to be twinkling because of:**
a. Water vapour in the air
b. Turbulence in the ocean
c. Dust particle in the atmosphere
d. Temperature variation in the atmosphere

**9. Both wool and cotton are bad conductors of heat. Then why do we feel warm only in woollen clothes?**
a. Wool increases the temperature of the body
b. Wool traps more air (insulator) than cotton
c. Wools absorbs radiant heat from outer objects
d. Wool rejects heat from the outer objects

**10. Tungsten filament is used in an electric bulb. When high amount of current is passed through the filament it emits light. Which of the following is true about tungsten?**
a. It is a good conductor
b. It is economical
c. It has high melting point
d. It is malleable

**11. Magnet is any material capable of attracting iron and producing a magnetic field outside itself. Which of the following alloys is used to make artificial magnet?**
a. Alnico
b. Duralumin
c. Stainless steel
d. Magnalium

Answers:

1. b 2. a 3. d 4. b 5. c 6. a 7. d 8. d 9. b 10. c 11. a

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# PHYTOHORMONE

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**1. Which of the following is not a characteristic of plant hormone?**
a) They are active in small concentration
b) They are pleiotropic in their effect
c) They are synthesized in specific glands and tissues
d) Plant hormones are tissue and time specific

**2. Which one of the following acids is a derivative of Carotenoides?**
a) Abscisic acid b) Indole butyric acid
c) Indole-3-acetic acid d) Gibberellic acid

**3. Cell elongation in internodal regions of the green plants takes place due to**
a) Cytokinins b) Gibberellins
c) Ethylene d) Indole acetic acid

**4. Which of the following prevents the fall of fruits?**
a) $GA_3$ b) NAA
c) Ethylene d) Cytokinine

**5. Differentiation of shoot is controlled by**
a) High auxin : Cytokinin ratio
b) High Cytokinin : auxin ratio
c) High Gibberellin : auxin ratio
d) High Gibberellin : Cytokinin ratio

**6. Coconut milk factor is**
a) An auxin b) A Gibberellin
c) ABA d) Cytokinin

**7. Gibberellin is obtained from**
a) *Phytopthera infestans* b) *Gibberella fujikuroi*
c) *Fusarium moniliformae* d) *Alternaria solani*

**8. Which one of the following plant hormones is used as anti-transpirant?**
a) IAA b) $GA_3$
c) ABA d) Ethylene

**9. Hypothecial plant hormones are**
a) Florigen b) Vernalin
c) Florigen and Vernalin d) None of the above

**10. Which hormone enhances seed germination by enhancing α-amylase synthesis?**
a) Auxin b) Gibberellin
c) ABA d) Cytokinin

**11. To avoid excessive water loss during severe drought stress, the closure of stomata is signalled by the production of**
a) IAA b) NAA
c) ABA d) IBA

**12. Which hormone is not translocated?**
a) Auxin b) Gibberellin
c) ABA d) Cytokinin

**13. Which of the following induces flowering in long day plants?**
a) Gibberellin b) Auxin
c) Ethylene d) Cytokinin

**14. Which one of the following hormones induces flowering?**
a) Gibberellin b) Auxin
c) Florigen d) Cytokinin

**15. Nodule formation is induced by**
a) IBA b) IAA
c) Both a) & b) d) NAA

**16. Which one of the following is an auxin receptor?**
a) ETR1 b) CBP1
c) ABP1 d) GRE

**17. 'Pomalin' is effective in increasing apple size and is a combination of**
a) Auxin and Gibberellin b) Cytokinins and Ethylene
c) Cytokinin and Gibberellin d) Auxin and Cytokinins

**18. Cytokinin treatment enhances**
a) Chlorophyll synthesis b) Chlorophyll degradation
c) Protein degradation d) Water uptake

Answers:

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|---|---|---|---|---|---|---|---|---|---|
| 1. c | 2. a | 3. b | 4. b | 5. b | 6. d | 7. b | 8. c | 9. c | 10. b |
| 11. c | 12. c | 13.a | 14. c | 15. b | 16. c | 17. c | 18. a | | |

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