Marking Guide – Physics B (2024/2025)

# Section A Answers [55 Marks]

1. 1) SI Base Units:

Answer: d) Kelvin, Ampere

1. 2) Motion Statements:

a) True, b) False, c) False, d) True

1. 3) Newton Laws & Forces:

a) True, b) False, c) True, d) False

1. 4) Lenses & Mirrors:

a) True, b) False, c) True, d) False

1. 5) Orbit & Motion:

I) d) Angular momentum, II) b) elliptical

1. 6) Electric Field Statements:

a) False, b) True, c) True, d) False

1. 7) Energy Sources:

a) True, b) False, c) True, d) False

1. 8) Electric Charges & Fields:

I) b, II) d, III) b, IV) d

1. 9) Pressure & Forces:

I) b, II) c

1. 10) Projectiles & Gravity:

I) b) FALSE, II) d) Correct acceleration

1. 11) Planetary Motion:

a) True, b) False, c) True, d) True

1. 12) Refraction:

I) d) v = 2x10^8 m/s, II) c) θc = 42°

1. 13) Forces on Plank:

I) b) 114 N, II) a) 60 N

1. 14) Simple Circuit:

I) a) 2A, II) b) 12V, III) c) 24W

1. 15) Heat Capacity:

I) d) 30 J/kg°C, II) b) 105 kJ

# Section B Answers [30 Marks]

1. 16) Collision & Forces:

- Total momentum = 0.1 kg·m/s  
- Final velocity = 2 m/s  
- Acceleration = 5 m/s²  
- Coefficient of friction = 0.17

1. 17) Lens & Image:

- Real and inverted  
- Position: d = 0.5 m  
- Magnification = 2  
- Image height = 4 cm

1. 18) Projectile Motion:

- vy = 22.54 m/s, vx = 10.42 m/s  
- h\_max = 25.92 m  
- Launch speed = 24.03 m/s  
- Angle = 62.02°

1. 19) Parallel Circuit:

- R\_total = 1.1 Ω  
- Current through 3Ω = 0.67 A  
- Voltage across 12Ω = 0.5 V  
- Power = 8 W

1. 20) Heat Graph:

- Melting point = 60°C  
- Boiling point = 200°C  
- Specific heat solid = 0.1 J/g°C  
- Specific heat liquid = 0.033 J/g°C

# Section C Answer [15 Marks]

21) Graph & Analysis:  
- Complete t² column using t² = t × t  
- Plot h vs t² and draw best-fit line  
- Slope = h/t² (approximate from graph)  
- D = 2 × S (should approximate gravity ≈ 9.8 m/s²)