MHT CET 2026 Physics Sample Paper 5

Question Booklet Version	MH-CET-2026 Roll No.	Question Booklet Sr. No.
5		
(Write this number on your Answer Sheet)	Answer Sheet No.	(Write this number on your Answer Sheet)

Day and Date :

Duration: 3.00 hours
Total Marks : 200

This is to certify that, the entries of MH-CET Roll No. and Answer Sheet No. have been correctly written and verified.

Candidate's Signature *Invigilator's Signature*

Instructions to Candidates

1. The test contains **50 Multiple Choice Questions (MCQs)** in the **Physics** section.
2. The total time allotted for the examination is **60 minutes**. The countdown timer on the top right of the screen will display the remaining time.
3. Candidates can navigate between questions in the Physics section at any time during the exam.
4. **Login Procedure:** Enter your Roll No. and Password as provided. Verify your name and photograph appearing on the screen. If there is a mismatch, report it to the invigilator immediately.
5. **Navigating Questions:** To select a question, click on the question number in the Question Palette on the right side of the screen.
6. **Answering:** To select your answer, click on the button of one of the options. To deselect, click on the chosen option again or click the **'Clear Response'** button.
7. **Saving:** You **MUST** click the **'Save Next'** button to save your answer for any question. Clicking 'Mark for Review' will not save the answer for final evaluation unless it is specifically answered and saved.
8. **Marking Scheme:**
   - Each correct response is awarded **one (1) mark**.
   - There is **no negative marking** for incorrect answers.
9. Status of questions will be shown by color codes: Green (Answered), Red (Not Answered), White (Not Visited), and Violet (Marked for Review).
10. Candidates are not allowed to open any other software or browser tabs. Doing so will result in the automated locking of the terminal.
11. **Rough Work:** All calculations must be done on the **Scribble Pad** provided. Candidates must write their Roll No. on the pad and return it to the invigilator before leaving the hall.
12. A digital Log Table/Calculator (if applicable) will be accessible via a button on the exam interface.
13. The test will automatically submit once the timer reaches zero. Candidates cannot submit the exam before the first 90 minutes.
14. Use of mobile phones, smartwatches, or any electronic gadgets is strictly prohibited.
15. No marks will be deducted for questions that are left unattempted.

1. $I_g = 8\% \times I$. What is S (shunt) connected in terms of G?

A) $\frac{G}{11}$ **B)** $\frac{2G}{23}$

C) $\frac{3G}{25}$ **D)** $\frac{4G}{29}$

2. In an LC circuit, the inductance L is 2 H and the capacitance C is 4 Î¼F. What is the frequency of oscillation of the circuit?

A) 100 Hz **B)** 50 Hz

C) 25 Hz **D)** 200 Hz

3. Assertion (A): When two waves of equal amplitude and a phase difference of $\frac{\pi}{2}$ interfere, the resulting intensity is equal to the intensity of one wave.
Reason (R): In interference, the resultant intensity is always the sum of individual intensities if the phase difference is non-zero.

A) Both A and R are true, and R is the correct explanation of A. **B)** Both A and R are true, but R is not the correct explanation of A.

C) A is true, but R is false. **D)** A is false, but R is true.

4. What is the gravitational force between two objects of masses $m_1 = 10\,\text{kg}$ and $m_2 = 20\,\text{kg}$, separated by a distance of $r = 5\,\text{m}$? (Gravitational constant $G = 6.67 \times 10^{-11}\,\text{N}\,\text{m}^2/\text{kg}^2$)

A) $5.33 \times 10^{-10}\,\text{N}$ **B)** $2.67 \times 10^{-9}\,\text{N}$

C) $4.67 \times 10^{-9}\,\text{N}$ **D)** $1.33 \times 10^{-9}\,\text{N}$

5. The speed of a wave is $30\,\text{m/s}$. If the distance between 11 crests is $1\,\text{m}$, what is the frequency (in Hz)?

A) $300\,\text{Hz}$ **B)** $330\,\text{Hz}$

C) $350\,\text{Hz}$ **D)** $360\,\text{Hz}$

6. A car accelerates uniformly from rest to a speed of 20 m/s in 10 seconds. What is the car's acceleration?

A) $2.0\,\mathrm{m/s^2}$ **B)** $1.0\,\mathrm{m/s^2}$

C) $0.5\,\mathrm{m/s^2}$ **D)** $4.0\,\mathrm{m/s^2}$

7. A copper block of mass 2 kg is heated from 20°C to 100°C. If the specific heat capacity of copper is $400\,\mathrm{J/kg^\circ C}$, how much heat energy is absorbed by the block? (Assume no phase change occurs.)

A) 6400 J **B)** 16000 J

C) 32000 J **D)** 64000 J

8. A spaceship moves with a velocity of 5000 m/s. What is the relativistic factor γ for the spaceship? (Given that $c = 3 \times 10^8\,\mathrm{m/s}$)

A) 1.0001 **B)** 1.001

C) 1.0005 **D)** 1.00001

9. What is the kinetic energy of a body of mass $2\,\mathrm{kg}$ moving with a velocity of $5\,\mathrm{m/s}$?

A) 25 J **B)** 10 J

C) 50 J **D)** 5 J

10. A 1.5 kg block is placed on a frictionless surface and attached to a spring with a spring constant of 100 N/m. If the block is displaced by 0.2 m from its equilibrium position, what is the potential energy stored in the spring?

A) 2.0 J **B)** 1.0 J

C) 0.5 J **D)** 3.0 J

11. A 5 kg block is placed on a horizontal surface. A force of 10 N is applied to the block. The coefficient of friction between the block and the surface is 0.2. Find the acceleration of the block.

A) $0.04\,\mathrm{m/s^2}$ **B)** $1.0\,\mathrm{m/s^2}$

C) $2.0\,\mathrm{m/s^2}$ **D)** $1.5\,\mathrm{m/s^2}$

12. The ratio of the mass densities of nuclei of $^{40}\mathrm{Ca}$ and $^{16}\mathrm{O}$ is close to:

A) 1 **B)** 0.1

C) 5 **D)** 2

13. What is the gravitational force between two 5 kg masses placed 2 meters apart? (Take $G = 6.67 \times 10^{-11}\,\mathrm{Nm^2/kg^2}$)

A) $4.17 \times 10^{-10}\,\mathrm{N}$ **B)** $8.34 \times 10^{-10}\,\mathrm{N}$

C) $1.67 \times 10^{-10}\,\mathrm{N}$ **D)** $2.50 \times 10^{-11}\,\mathrm{N}$

14. A 5-ohm resistor is connected to a 10 V battery. Calculate the current flowing through the resistor.

A) $2.0\,\mathrm{A}$ **B)** $1.0\,\mathrm{A}$

C) $0.5\,\mathrm{A}$ **D)** $0.2\,\mathrm{A}$

15. A wire of length L having Resistance R falls from a height h in Earth's horizontal magnetic field. What is the current through the wire?

A) $\frac{hB}{R}$ **B)** $\frac{hB^2}{R}$

C) $\frac{hB^2}{2R}$ **D)** $\frac{hB}{2R}$

16. In a parallel combination of resistors, given the voltage, find the current flowing through the circuit.

A) $I = \frac{V}{R_{\text{total}}}$ **B)** $I = VR_{\text{total}}$

C) $I = \frac{V}{R_1}$ **D)** $I = \frac{V}{R_1 + R_2}$

17. A mass of 0.5 kg is attached to a spring of force constant 200 N/m. What is the time period of oscillation?

A) 0.314 s **B)** 0.451 s

C) 0.567 s **D)** 0.789 s

18. A block slides down a smooth inclined plane, and its acceleration is found to be $\frac{g}{8}$. If g is the acceleration due to gravity, what is the angle of inclination θ of the plane?

A) $\tan^{-1}\left(\frac{1}{8}\right)$

B) $\tan^{-1}\left(\frac{1}{2}\right)$

C) $\tan^{-1}\left(\frac{1}{4}\right)$

D) $\tan^{-1}\left(\frac{1}{16}\right)$

19. The longest wavelength associated with the Paschen series is:

$$(\text{Given } R_H = 1.097 \times 10^7 \text{ SI unit}).$$

A) $1.094 \times 10^{-6}\,\text{m}$

B) $2.973 \times 10^{-6}\,\text{m}$

C) $3.646 \times 10^{-6}\,\text{m}$

D) $1.876 \times 10^{-6}\,\text{m}$

20. A 5 kg block is placed on a horizontal surface. A force of 10 N is applied to the block. The coefficient of friction between the block and the surface is 0.2. Find the acceleration of the block.

A) $0.04\,\text{m/s}^2$

B) $1.0\,\text{m/s}^2$

C) $2.0\,\text{m/s}^2$

D) $1.5\,\text{m/s}^2$

21. Two coils are placed close to each other. The mutual inductance of the pair of coils depends upon:

A) the rates at which currents are changing in the two coils

B) the relative position and orientation of the two coils

C) the materials of the wires of the coils

D) the currents in the two coils

22. Rate of cooling of a body is 0.2°C/min when excess temperature is 20°C. The proportionality constant k is:

A) $0.005\,\text{min}^{-1}$

B) $0.01\,\text{min}^{-1}$

C) $0.05\,\text{min}^{-1}$

D) $0.2\,\text{min}^{-1}$

23. In a circuit, a current of $2\,\mathrm{A}$ flows through a resistor of resistance $5\,\Omega$. Calculate the power dissipated in the resistor.

A) $20\,\mathrm{W}$ **B)** $5\,\mathrm{W}$

C) $15\,\mathrm{W}$ **D)** $10\,\mathrm{W}$

24. In Young's double slit experiment, we get 15 fringes per cm on the screen, using light of wavelength 5600 Ã…. For the same setting, how many fringes per cm will be obtained with light of wavelength 7000 Ã…?

A) 10 **B)** 12

C) 15 **D)** 18

25. Evaluate the integral: $\int \log((2 + x)^{2 + x})\, dx$

A) $(2+x)^{2+x} + C$ **B)** $(2+x)\log((2+x)^{2+x}) + C$

C) $(2+x)\cdot(2+x)^{x} + C$ **D)** $(2+x)(2+x)^{x}(\log(2+x)+1) + C$

26. What is the energy stored in a capacitor of capacitance $C = 10\,\mu\mathrm{F}$ when a potential difference of $V = 20\,\mathrm{V}$ is applied across it?

A) $0.01\,\mathrm{J}$ **B)** $2\,\mathrm{J}$

C) $4\,\mathrm{J}$ **D)** $0.1\,\mathrm{J}$

27. Water is being poured at the rate of 36 m^3/min into a cylindrical vessel whose circular base is of radius 3 meters. Then the water level in the cylinder increases at the rate of:

A) $\frac{4}{\pi}\,\mathrm{m/min}$ **B)** $4\pi\,\mathrm{m/min}$

C) $\frac{1}{4\pi}\,\mathrm{m/min}$ **D)** $\frac{\pi}{4}\,\mathrm{m/min}$

28. A convex lens has a focal length of $20\,\mathrm{cm}$. An object is placed at a distance of $30\,\mathrm{cm}$ from the lens. What is the position of the image formed?

A) $60\,\mathrm{cm}$ **B)** $15\,\mathrm{cm}$

C) $10\,\mathrm{cm}$ **D)** $25\,\mathrm{cm}$

29. A gas occupies a volume of 10.0 L at a pressure of 2.0 atm and a temperature of 300 K. What will the volume be if the pressure is increased to 4.0 atm and the temperature is increased to 600 K? (Assume the amount of gas remains constant.)

A) $5.0\,\text{L}$ **B)** $10.0\,\text{L}$

C) $20.0\,\text{L}$ **D)** $2.5\,\text{L}$

30. A gas absorbs 100 J of heat while performing 40 J of work on its surroundings. Calculate the change in internal energy of the gas.

A) $60\,\text{J}$ **B)** $140\,\text{J}$

C) $40\,\text{J}$ **D)** $100\,\text{J}$

31. At a height h above the Earth's surface, the acceleration due to gravity becomes $\frac{g}{\sqrt{3}}$. What is the value of h in terms of the Earth's radius R?

A) R **B)** $\sqrt{2}R$

C) $2R$ **D)** $\frac{R}{2}$

32. A 200 g sample of water at 80°C is mixed with 100 g of water at 20°C. Assuming no heat loss to the surroundings, what is the final temperature of the mixture?

A) 50°C **B)** 60°C

C) 55°C **D)** 45°C

33. A block of mass 2 kg is acted upon by a net force of 10 N. What is its acceleration?

A) \(2 m/s^{2}\) **B)** \(5 m/s^{2}\)

C) \(10 m/s^{2}\) **D)** \(20 m/s^{2}\)

34. A particle performs simple harmonic motion with amplitude A. Its speed is tripled at the instant that it is at a distance $\frac{2A}{3}$ from the equilibrium position. The new amplitude of the motion is:

A) $A\sqrt{3}$ **B)** $\frac{7A}{3}$

C) $\frac{A}{3}\sqrt{41}$ **D)** $3A$

35. The ratio of the shortest wavelength of the Balmer series to the shortest wavelength of the Paschen series is:

A) $\frac{4}{9}$ **B)** $\frac{1}{2}$

C) $\frac{1}{3}$ **D)** $\frac{3}{4}$

36. A battery of 6 V is connected to the circuit as shown below. The current I drawn from the battery is:

A) $1\,\text{A}$ **B)** $2\,\text{A}$

C) $\frac{6}{11}\,\text{A}$ **D)** $\frac{4}{3}\,\text{A}$

37. The resistance of a wire is $10\,\Omega$ and the current passing through it is $2\,\text{A}$. What is the potential difference across the wire?

A) $20\,\text{V}$ **B)** $5\,\text{V}$

C) $15\,\text{V}$ **D)** $10\,\text{V}$

38. A car of mass 1000 kg is moving in a circular path of radius 50 m with a speed of 20 m/s. Calculate the centripetal force acting on the car.

A) $4000\,\text{N}$ **B)** $2000\,\text{N}$

C) $5000\,\text{N}$ **D)** $10000\,\text{N}$

39. \(
In an a.c. circuit, voltage and current are given by:

$$V = 100\sin(100t)\,\text{V} \quad \text{and} \quad I = 100\sin\left(100t + \frac{\pi}{3}\right)\,\text{mA}.$$

The average power dissipated in one cycle is:
\)

A) $10\,\text{W}$ **B)** $2.5\,\text{W}$

C) $25\,\text{W}$ **D)** $5\,\text{W}$

40. Relative permittivity and permeability of a material are ε_r and μ_r, respectively. Which of the following values of these quantities are allowed for a diamagnetic material?

A) $\varepsilon_r = 0.5, \mu_r = 1.5$ **B)** $\varepsilon_r = 1.5, \mu_r = 0.5$

C) $\varepsilon_r = 0.5, \mu_r = 0.5$ **D)** $\varepsilon_r = 1.5, \mu_r = 1.5$

41. How much time does a particle at $x = C$ take to go from the mean position to the extreme (maximum displacement) for the first time?

A) $T/2$ **B)** $T/4$

C) $T/3$ **D)** T

42. Three-point charges Q, q, and $-q$ are kept at the vertices of an equilateral triangle of side L. What is the total electrostatic potential energy of the system?

A) $\frac{kQ^2}{a}$ **B)** 0

C) $-\frac{kq^2}{L}$ **D)** $\frac{a}{3kQ^2}$

43. A circular loop of radius 0.2 m carries a current of 4 A. What is the magnetic field at a point on the axis of the loop at a distance 0.2 m from the center?

A) $\frac{4\times10^{-6}}{4\times10^{-7}}\ \mathrm{T}$ **B)** $\sqrt{2}\,\mathrm{T}$

C) $4 \times 10^{-7}\,\mathrm{T}$ **D)** $(0.2)^2\,\mathrm{T}$

44. A simple pendulum of length 1 m is oscillating with a small amplitude. If the acceleration due to gravity is $9.8\,\mathrm{m/s^2}$, what is the time period of the pendulum?

A) $1.0\,\mathrm{s}$ **B)** $2.0\,\mathrm{s}$

C) $3.0\,\mathrm{s}$ **D)** $4.0\,\mathrm{s}$

45. The time period of SHM is $2\,\mathrm{s}$ with mass m. If an additional mass of 40 g is added, the time period increases by $3\,\mathrm{s}$. What is m (in grams)?

A) $7.64\,\mathrm{g}$ **B)** $40\,\mathrm{g}$

C) $50\,\mathrm{g}$ **D)** $60\,\mathrm{g}$

46. Which of the following correctly represents the AND logic gate?

A) Output = 1 if at least one input is 1

B) Output = 1 only if all inputs are 1

C) Output = 0 if all inputs are 0

D) Output = 1 if all inputs are 0

47. A 2 kg object is hanging vertically from a rope. The tension in the rope is 15 N. What is the acceleration of the object? (Assume $g = 9.8\,\mathrm{m/s^2}$)

A) $2.3\,\mathrm{m/s^2}$

B) $2.0\,\mathrm{m/s^2}$

C) $0.5\,\mathrm{m/s^2}$

D) $3.0\,\mathrm{m/s^2}$

48. A star 'A' has radiant power equal to 3 times that of the Sun. The temperature of star 'A' is $6000\,\mathrm{K}$ and that of the Sun is $2000\,\mathrm{K}$. What is the ratio of their radii?

A) 900 : 1

B) 81 : 1

C) 729 : 1

D) 27 : 1

49. A projectile is fired with an initial velocity of 20 m/s at an angle of 30° with the horizontal. Calculate the maximum height reached by the projectile.

A) 10 m

B) 5.1 m

C) 20 m

D) 25 m

50. The coefficient of performance of a refrigerator is 5. If the temperature inside the freezer is $-20^\circ\mathrm{C}$, what is the temperature of the surroundings to which it rejects heat?

A) $31^\circ\mathrm{C}$

B) $37^\circ\mathrm{C}$

C) $41^\circ\mathrm{C}$

D) $47^\circ\mathrm{C}$

PHYSICS ANSWER KEY

1. (B)	**2. (B)**	**3. (D)**	**4. (A)**	**5. (A)**
6. (A)	**7. (C)**	**8. (A)**	**9. (A)**	**10. (A)**
11. (A)	**12. (A)**	**13. (B)**	**14. (A)**	**15. (A)**
16. (A)	**17. (A)**	**18. (A)**	**19. (D)**	**20. (A)**
21. (B)	**22. (B)**	**23. (A)**	**24. (B)**	**25. (D)**
26. (A)	**27. (A)**	**28. (A)**	**29. (A)**	**30. (A)**
31. (A)	**32. (A)**	**33. (B)**	**34. (B)**	**35. (A)**
36. (A)	**37. (A)**	**38. (A)**	**39. (B)**	**40. (B)**
41. (B)	**42. (C)**	**43. (B)**	**44. (B)**	**45. (A)**
46. (B)	**47. (A)**	**48. (A)**	**49. (B)**	**50. (B)**