QUESTION BANK

FOR

INTERMEDIATE PRACTICAL EXAMINATION

IN

PHYSICS

(With effect from March-2014)

TELANGANA STATE
BOARD OF INTERMEDIATE EDUCATION (TSBIE)
HYDERABAD
# BOARD OF INTERMEDIATE EDUCATION, A.P., HYDERABAD

## PHYSICS PRACTICAL

### Model Question Paper with Scheme of valuation

(With effect from March-2014)

<table>
<thead>
<tr>
<th>Time: 3Hrs.</th>
<th>Max Marks: 30</th>
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</thead>
<tbody>
<tr>
<td>1. Formula and Procedure</td>
<td>(2 + 3) = 5 Marks</td>
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<tr>
<td>2. Tabular form - Observations and graph</td>
<td>(2 + 4 + 2) = 8 Marks</td>
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<tr>
<td>3. Calculations - Result and Units</td>
<td>(4 + 1 + 1) = 6 Marks</td>
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<tr>
<td>4. Precautions</td>
<td>2 Marks</td>
</tr>
<tr>
<td>5. Viva - Vove</td>
<td>5 Marks</td>
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<tr>
<td>6. Record</td>
<td>4 Marks</td>
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</table>

### Total Marks

30 Marks

**Note:**

1. Every candidate shall submit the certified practical record book to the practical examiner.

2. One mark should be awarded for every five experiments.

3. If a candidate attends the practical examination without certified practical record book, he may be allowed to take the practical examination. But record marks shall not be awarded to such candidates.

4. Only **one question** should be taken from Part - C and **12th question** may be taken from other parts.
1. Find the volume of the given brass/steel sphere using Vernier Callipers and hence determine its mass (take 6 observations; given density of brass: 8.4g/cc and density of steel 7.9g/cc)

2. Find the volume of the given rectangular glass plate using Vernier Callipers and screw gauge. (Take 4 observations for each dimension).

3. Find the volume of the given Cylinder using Vernier Calipers and Screw gauge (Take 6 observations for each dimension).

4. Using Physical balance, determine the mass of the given body correct to a milligram.
5. Using Physical balance, find the volume of the given object. (The desity of the material of the object should be given to the students.) (Density of brass: 8.4g/cc and density of steel 7.9g/cc)

6. Find the acceleration due to gravity at your place using Simple Pendulum. Calculate the percentage error in your measurement. (Take 6 observations).

7. Find the acceleration due to gravity (g) at your place using Simple Pendulum. Draw $l - T^2$ graph and verify the value of “g” with the value obtained from the graph. (Take 6 observations).

8. Draw $l - T^2$ graph in the case of a Simple Pendulum and find the length of the seconds pendulum. (Take 6 observations.)
Part - B

(Force constant, Concurrent forces, Boyle’s law)

9. Verify Boyle’s law using Boyle’s law apparatus (or) quill tube apparatus and plot $h - \frac{1}{l}$ graph. (Take 6 observations.)

10. Plot $h - \frac{1}{l}$ graph using Boyle’s law apparatus (or) quill tube apparatus. Find the atmospheric pressure from the graph. (Take 6 observations.)

11. Verify the parallelogram law of forces and find the weight of the given stone in air using the parallelogram law. (Take 2 observations in each case.)

12. Find the relative density of the given body using parallelogram law of forces. (Take 2 observations in each case.)
13. Verify the triangle law of forces and find the weight of the given stone in air using the triangle law of forces. (Take 2 observations in each case.)

14. Find the volume of the given stone using triangle law of forces. (Take 2 observations in each case.)

15. Find the force constant (or spring constant) of the given helical spring by the method of oscillation using different suspension weights. (Take 3 observations in each case.)

Part - C

16. Determine the coefficient of apparent expansion of the given liquid using specific gravity bottle. (Mass need not be calculated correct up to milligram.)
17. Find the coefficient of real expansion of the given liquid using specific gravity bottle. (Given that the coefficient of linear expansion of glass = $\alpha_g = 0.000009 \, ^\circ C^{-1}$) (Mass need not be calculated correct up to milligram.)

18. Find the specific heat of the given solid by using principle of method of mixtures. (Mass need not be calculated correct up to milligram.)

19. Determine the surface tension of water by capillary rise method.

Part - D

(Concave mirror, Convex lens, Refractive index.)

20. Determine the focal length of the given concave mirror by u-v method and verify the result from u-v graph (Take 6 observations.)
21. Determine the focal length of the given concave mirror by u-v method and verify the value from \( \frac{1}{u} - \frac{1}{v} \) graph (Take 6 observations.)

22. Determine the focal length of the given convex lens by u-v method and verify the value from u-v graph (Take 6 observations.)

23. Determine the focal length of the given convex lens by u-v method and verify the result with \( \frac{1}{u} - \frac{1}{v} \) graph (Take 6 observations.)

24. Find the focal length of the given convex lens by conjugate foci method and verify the result with the value obtained from u-v graph. (Take 6 observations in each method.)

25. Draw i - d curve and find the refractive index of the material of the given prism (Given that the angle of the prism, A = 60°.)
26. Draw $i - d$ curve and determine the angle of the prism ($A$) assuming the refractive index of the material of the prism, $\mu = 1.5$.

$\mu = 1.5$ (Given).

Part - E

(Velocity of sound, Magnetic lines of force)

27. Determine the velocity of sound in air at room temperature using resonance apparatus and calculate the value of velocity of sound at $0^\circ C$. (Use 2 tuning forks of different frequencies.)

28. Compare the frequencies of the given two tuning forks using resonance apparatus.

29. Draw the magnetic field lines in the combined magnetic field due to the earth and the short bar magnet placed in the magnetic meridian with its North - pole pointing towards the geographical south. Locate the Null points and calculate the Magnetic Moment of the given bar magnet. (Given that, horizontal component of earth magnetic field = $0.38 \times 10^{-4}$Tesla)
30. Draw the magnetic field lines in the combined magnetic field due to the earth and the bar magnet placed in the magnetic meridian with its North pole pointing towards geographical North. Locate the Null points and calculate the Magnetic Moment of the given bar magnet. (Given that, horizontal component of earth magnetic field = 0.38 x 10^{-4} Tesla)

Part - F

(T.G., Ohms law, Metre bridge, Junction Diode, Transistor)

31. Find the strength of the electric current in an electric circuit using tangent galvanometer. (Take 6 observations.)

32. Determine the reduction factor (or) galvanometer constant (K) of the tangent galvanometer using ammeter. (Take 6 observations.)
33. Verify Ohm's law using R-cot \( \theta \) graph method. (Take \textbf{6 observations}.)

\[ R \text{-cot } \theta \text{ graph method.} \]

34. Find the specific resistance of the given wire using metre bridge. (Take \textbf{4 observations}.)

\[ \text{specific resistance} \]

35. Find the individual electrical resistance of the given two wires by connecting them in series and parallel using metre bridge. (Take \textbf{3 observations in each method}.)

\[ \text{individual electrical resistance} \]

36. Draw Current - Voltage (I-V) characteristics of the junction diode. (Take atleast \textbf{6 observations in each bias})

\[ \text{I-V characteristics} \]

37. Draw characteristics of common emitter n-p-n (or p-n-p) transistor configuration and find the input resistance and output resistance from them.
38. Draw characteristics of common emitter n-p-n (or p-n-p) transistor configuration and find the value of current gain using transfer characteristics. (Take 6 observations.)