### BLUE PRINT FOR PERIODIC TEST - II: CLASS X

<table>
<thead>
<tr>
<th>Chapter</th>
<th>MCQ (1 mark)</th>
<th>VSA (1 mark)</th>
<th>SA – I (2 marks)</th>
<th>SA – II (3 marks)</th>
<th>LA (4 marks)</th>
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<tr>
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<td>4(1)</td>
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<td>2(1)</td>
<td>3(1)*</td>
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<td>11(5)</td>
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<td>2(1)*</td>
<td>6(2)</td>
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<td>10(5)</td>
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<td>Some Application of Trigonometry</td>
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<td>4(1)*</td>
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<td>12(4)</td>
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### MARKING SCHEME FOR PERIODIC TEST - II

<table>
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<tr>
<th>SECTION</th>
<th>MARKS</th>
<th>NO. OF QUESTIONS</th>
<th>TOTAL</th>
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<td><strong>GRAND TOTAL</strong></td>
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KENDRIYA VIDYALAYA GACHIBOWLI, GPRA CAMPUS, HYD-32
SAMPLE PAPER 03 FOR PERIODIC TEST II EXAM (2019-20)

SUBJECT: MATHEMATICS
CLASS : X
MAX. MARKS : 40
DURATION: 1½ HRS

General Instructions:
(i). All questions are compulsory.
(ii). This question paper contains 20 questions divided into four Sections A, B, C and D.
(iii). Section A comprises of 10 questions of 1 mark each. Section B comprises of 3 questions of 2 marks each. Section C comprises of 4 questions of 3 marks each and Section D comprises of 3 questions of 4 marks each.
(iv). There is no overall choice. However, an internal choice has been provided in one question of 2 marks each, one question of 3 marks each and one question of 4 marks each. You have to attempt only one of the alternatives in all such questions.
(v). Use of Calculators is not permitted.

SECTION – A
Questions 1 to 10 carry 1 mark each.

1. Areas of two similar triangles are in the ratio 4 : 9. Sides of these triangles are in the ratio (a) 2 : 3  (b) 4 : 9  (c) 81 : 16  (d) 16 : 81

2. In the adjoining figure, DE || BC in ΔABC such that BC = 8 cm, AB = 6 cm and DA = 1.5 cm. Find DE. (a) 2 cm  (b) 8 cm  (c) 4 cm  (d) 6 cm

3. Distance of the point (4, a) from x-axis is half its distance from y-axis then a = (a) 2  (b) 8  (c) 4  (d) 6

4. The value of \( \sin 60^0 \cos 30^0 - \cos 60^0 \sin 30^0 \) is (a) 1  (b) \(-1\)  (c) 0  (d) none of these

5. If the altitude of the sun is at 60\(^0\), then the height of the vertical tower that will cast a shadow of length 30m is (a) \(30\sqrt{3}\) m  (b) 15 m  (c) \(\frac{30}{\sqrt{3}}\) m  (d) \(15\sqrt{2}\) m

6. A girl walks 200 towards East and then she walks 150m towards North. Find the distance of the girl from the starting point.

7. If the mid-point of the line segment joining the points P(6, b – 2) and Q(–2, 4) is (2, –3), find the value of b.

8. A tower is 100\(\sqrt{3}\) m high. Find the angle of elevation if its top from a point 100 m away from its foot.

9. When the length of the shadow of a pole of height 7 m is equal to 7 m then find the elevation of these source of light.

10. If \(\tan \theta = \frac{15}{8}\), find the value of \(\sin \theta\).

SECTION – B
Questions 11 to 13 carry 2 marks each.

11. Find the coordinates of the point which divides the line segment joining the points (4, –3) and (8, 5) in the ratio 3 : 1 internally.
12. An observer, 1.7 m tall, is $20\sqrt{3}$ m away from a tower. The angle of elevation from the eye of
observer to the top of tower is $30^\circ$. Find the height of tower.

13. Evaluate: $4 \cot^2 45^\circ - \sec^2 60^\circ + \sin^2 60^\circ + \cos^2 90^\circ$.

**OR**

If $\cos \alpha = \frac{1}{2}$ and $\tan \beta = \frac{1}{\sqrt{3}}$. Find $\sin(\alpha + \beta)$ where $\alpha$ and $\beta$ are both acute angles.

**SECTION – C**

Questions 14 to 17 carry 3 marks each.

14. If $\cos (A - B) = \frac{\sqrt{3}}{2}$ and $\sin (A + B) = 1$, then find the value of $A$ and $B$.

15. Evaluate: $\frac{2 \sin 68^\circ}{\cos 22^\circ} - \frac{2 \cot 15^\circ}{5 \tan 75^\circ} - \frac{3 \tan 45^0 \tan 20^0 \tan 40^0 \tan 50^0 \tan 70^0}{5}$

16. The perpendicular from $A$ on side $BC$ of a $\Delta ABC$ intersects $BC$ at $D$ such that $DB = 3 \ CD$ (see
the below figure). Prove that $2 \ AB^2 = 2 \ AC^2 + BC^2$.

![Diagram](image)

17. Find the point on the $x$-axis which is equidistant from $(2, -5)$ and $(-2, 9)$.

**OR**

Show that points $A(7, 5)$, $B(2, 3)$ and $C(6, -7)$ are the vertices of a right triangle. Also find its
area.

**SECTION – D**

Questions 18 to 20 carry 4 marks each.

18. Prove that, in a right triangle, the square on the hypotenuse is equal to the sum of the squares on
the other two sides.

19. Find the area of the triangle formed by joining the mid-points of the sides of the triangle whose
vertices are $(0, -1)$, $(2, 1)$ and $(0, 3)$. Find the ratio of this area to the area of the given triangle.

20. The angles of depression of the top and the bottom of an 8 m tall building from the top of a
multi-storeyed building are $30^\circ$ and $45^\circ$, respectively. Find the height of the multi-storeyed
building and the distance between the two buildings.

**OR**

As observed from the top of a 75 m high lighthouse from the sea-level, the angles of depression
of two ships are $30^\circ$ and $45^\circ$. If one ship is exactly behind the other on the same side of the
lighthouse, find the distance between the two ships.