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Updated as per the omitted portion in syllabus of language subjects viz. Hindi (लोकवाणी) and Sanskrit (Composite) or Sanskrit (Entire), the updated format of the Activity sheets and as per the Activity sheets of Board's March 2020.

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STD. X

| Optional subjects → | Hindi (Lokvani) 40 marks | Sanskrit (Composite) 40 marks | Sanskrit (Entire) 80 marks |
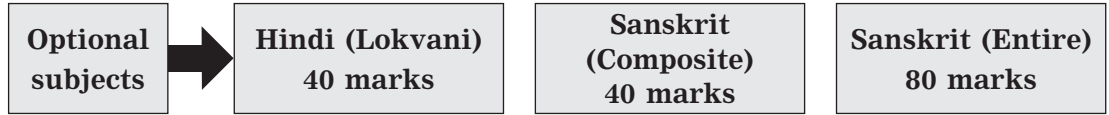
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NAVNEET®

The world is going through an unforeseen situation of Covid-19 that has never been experienced before. Even in such a situation, it is a matter of pride that the principals, teachers, students and their parents from across the state of Maharashtra are giving top priority to the Board exams of Std. X by continuing with their efforts in teaching and learning with the help of technology. As the leading educational publisher, we too, are committed to contribute in this noble deed of imparting knowledge. We are hence delighted to publish the latest **'Navneet Practice Papers and Activity Sheets (All subjects) : Std. X'** book for the Board examination 2021 as per the updated format.

Given the limited timespan of teaching and learning due to the Covid-19 situation, the Board has omitted some portions of the syllabus from the evaluation i.e. examination in each subject for the academic year 2020-21. An important feature of the book **'Navneet Practice Papers and Activity Sheets'** is that it has been prepared precisely by keeping in mind this omitted portion from the syllabus.

In this book, the detailed information about the above mentioned omitted portions has been given for easy reference in a box labelled as **'Most important'** at the beginning of each subject. This will enable the students to know exactly which portion they need to study for the examination.

The book includes updated format of the Board's Question papers/Activity sheets with explanation and guidance. This will ensure that the students will have no doubts about the format of the question papers/activity sheets.

Board's March 2020 Question papers/Activity sheets have been provided along with full solutions and marking scheme for complete guidance. In addition to providing answers to the Question papers/Activity sheets, the questions and answers from the omitted syllabus have also been highlighted with special notes, which will help the students know that the questions on these omitted portion will not appear in the 2021 examination. At the same time the students will understand what questions could be asked in the related question type and how to write their answers. The solutions to the Board's Question paper/Activity sheets have been purposely given on the specimen answer sheets to give the students complete understanding of how to write the answers in an ideal manner.

The **'Navneet Practice Papers and Activity Sheets'** book consists of 5 Question papers/ Activity sheets of each subject for practice, too. The practice Question papers/Activity sheets have been prepared meticulously by the expert and experienced team of authors of Navneet keeping the omitted portion in mind. In doing so, we have made sure that all the possible question types in the textbook and 'updated format' are incorporated in the book, for activities or questions can be asked in many different ways for a particular question in the Activity sheets. The book also provides answers to the questions in Practice papers of Mathematics (Part-I) & (Part-II) for cross-checking.

In a nutshell, the **'Navneet Practice Papers and Activity Sheets'** book will be extremely beneficial for the students to prepare and practise thoroughly for their Board examinations. We are confident that with this practice, the students will get brilliant success in their examination.

Navneet wishes all the students of Std. X a spectacular success ahead!

– The Publishers

CONTENTS

Section 9 : Mathematics (Part – II)

Most Important

Note : Some portions from the syllabus of Mathematics (Part – II) have been omitted for the evaluation in exam to be held for the academic year 2020−21 by S.S.C. Board.

• The portions omitted from the syllabus are :

Chapter 1 : (Similarity)

Page 8	: Theorem of an angle bisector of a triangle (Rows 14 to 21).
Page 9	: Entire page.
Page 10	: Entire page.
Page 11	: Remember this Ex. (3) and (4).
Page 12	: Ex. (2) and Activity.
Page 13	: Activity. Practice Set 1.2 : Subquestions (1), (2), (3) of Ex. 1.
Pages 14 and 15	: Practice Set 1.2 : Ex. 3, 5, 6, 7, 8, 9, 11.
Pages 28 and 29	: Problem Set 1 : Ex. 8, 9, 10.

Chapter 2 : (Pythagoras Theorem)

Pages 40 to 42	: Entire pages
Page 43	: Practice Set 2.2
Page 44	: Problem Set 2 : Ex. 1. Subquestion (6)
Pages 45 and 46	: Problem Set 2 : Ex. 8, 9, 12, 17, 18

Chapter 3 : (Circle)

Page 75	: Theorem of angle between tangent and secant (Rows 5 to 23).
Pages 76 to 82	: Entire pages
Page 83	: Problem Set 3 : Ex. 1. Subquestion (7).
Pages 87 to 90	: Problem Set 3 : Ex. 13, 15, 16, 18, 22, 24.

Chapter 4 : (Geometric Construction)

No portion has been omitted.

Chapter 5 : (Coordinate Geometry)

Page 116	: Slope of a line. Activity I.
Pages 117 to 121	: Entire pages
Pages 122 and 123	: Ex. 6, 7, 8 of Practice Set 5.3. Problem Set 5 : Subquestion (4) of Ex. 1. Subquestions (1), (2), (3) of Ex. 2. Ex. 9, 10, 22.

Chapter 6 : (Trigonometry)

Pages 132 to 137 [Word problems are omitted]

Chapter 7 : (Mensuration)

Entire chapter is omitted.

No question will be asked from the omitted portion. However, students should study the omitted portion on their own because it may be useful for further study.

Questions asked in March 2020 Board Paper from this omitted portion are highlighted using screen.

These Practice Papers have been prepared keeping in mind the portion omitted from the syllabus.

Q. 1. (A) Four alternative answers are given for each of the following subquestions. Choose the correct alternative and write the letter of alphabet of that answer : **4**

Remember :
- In this question, 4 multiple choice subquestions of 1 mark each will be asked. Four alternatives, for each subquestion, will be given. Choose and write the letter of the correct alternative (with brackets) against the question number.
- All the subquestions are compulsory.
- Method of solution is not expected.

Q. 1. (B) Solve the following subquestions : **4**

Remember :
- In this question, 4 subquestions of 1 mark each will be asked.
- All subquestions are compulsory.

Q. 2. (A) Complete and write *any two* of the following activities : **4**

Remember :
- In this question, 3 activities of 2 marks each will be given.
- Students should attempt any two of them.

Q. 2. (B) Solve *any four* of the following subquestions : **8**

Remember :
- In this question, 5 subquestions of 2 marks each will be asked.
- Students should solve any four of them.
- Answers with solution are expected.

Q. 3. (A) Complete and write *any one* of the following activities : **3**

Remember :
- In this question, 2 activities of 3 marks each will be given.
- Students should attempt any one of them.

Q. 3. (B) Solve *any two* of the following subquestions : **6**

Remember :
- In this question, 4 subquestions of 3 marks each will be asked.
- Students should solve any two of them.
- Theorems may be asked in this question.
- Answers with solution are expected.

Q. 4. Solve *any two* of the following subquestions :   **8**

> **Remember :**
> - In this question, 3 subquestions of 4 marks each will be asked.
> - Students should solve any two of them.
> - These questions may be challenging.
> - These questions will not be from the textbook, but based on the syllabus.
> - Answers with solution are expected.

Q. 5. Solve *any one* of the following subquestions :   **3**

> **Remember :**
> - In this question, 2 subquestions of 3 marks each will be asked. Students should solve any one of them.
> - Answers with solution are expected.
> - These questions may be open ended questions.
> - These questions will not be from the textbook, but based on the syllabus.

————

QUESTION PAPERS FOR PRACTICE

MATHEMATICS (PART – II)
QUESTION PAPER 1

Time : 2 Hours]   **[Total Marks : 40**

Note : *(i)* ***All*** *questions are compulsory.*

    *(ii) Use of calculator is **not** allowed.*

   (iii) The numbers to the right of the questions indicate full marks.

   *(iv) In case of MCQ's [Q. No. **1(A)**], only the first attempt will be evaluated and will be given credit.*

    (v) For every MCQ, the correct alternative (A), (B), (C) or (D) in front of subquestion number is to be written as an answer.

   (vi) Draw proper figures for answers wherever necessary.

  (vii) The marks of construction should be clear and distinct. Do not erase them.

 (viii) Diagram is essential for writing the proof of the theorem.

Q. 1. (A) Four alternative answers are given for each of the following subquestions. Choose the correct alternative and write the alphabet of that answer :   **4**

   (i) In a right angled triangle, if the sum of the squares of the sides making a right angle is 169, then what is the length of the hypotenuse?

     (A) 15   (B) 13   (C) 5   (D) 12

  (ii) The distance between the point $(-6, 8)$ and the origin is ....

     (A) 10   (B) 11   (C) 5   (D) 14

  (iii) If $\dfrac{1-\sin^2 A}{\cos^2 A} = \tan \theta$, then the value of θ is ....

     (A) 60°   (B) 45°   (C) 90°   (D) 30°

  (iv) The areas of two similar triangles are 9 cm^2 and 16 cm^2. The ratio of their corresponding heights is ....

     (A) 9 : 16   (B) 3 : 4   (C) 4 : 3   (D) 16 : 9

Q. 1. (B) Solve the following subquestions :   **4**

   (i) Two circles with radii 3.5 cm and 2.5 cm touch each other internally. Find the distance between their centres.
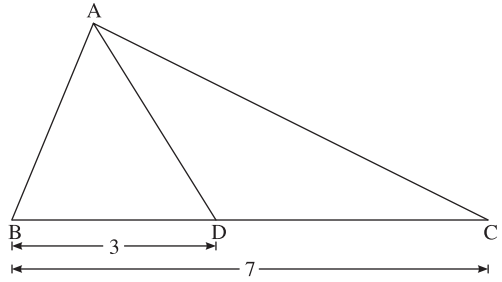
  (ii) $P\left(\dfrac{a}{2}, 4\right)$ is the midpoint of seg AB joining the points A$(-6, 5)$ and B$(-2, 3)$. Find the value of a.

(iii) In $\triangle ABC$, if $AB^2 = AC^2 + CB^2$, state with reason whether $\triangle ABC$ is a right angled triangle or not.

(iv) In the figure, $BC = 7$, $BD = 3$.

Write the ratio $\dfrac{A(\triangle ABD)}{A(\triangle ABC)}$.

Q. 2. (A) Complete and write *any two* of the following activities :   4

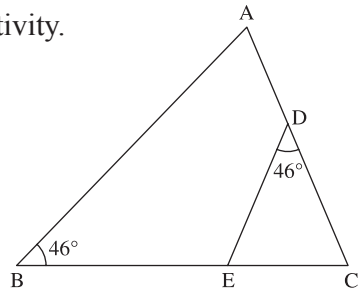(i) Observe the figure and complete the following activity.

In $\triangle ABC$ and $\triangle EDC$,

$\angle ABC \cong \angle \boxed{}$ ... (Each measures 46°)

$\angle C \cong \angle C$ ... ($\boxed{}$)

$\therefore \triangle ABC \sim \triangle \boxed{}$

         ... ($\boxed{}$ test for similarity)

(ii) Observe the given figure and complete the following activity to find the measure of an angle in a semicircle.

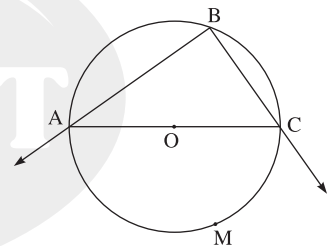seg AC is the diameter.

$\therefore m(\text{arc AMC}) = 180°$

$\angle ABC = \dfrac{1}{2} m(\text{arc } \boxed{})$

         ... [Inscribed angle theorem]

$\therefore \angle ABC = \dfrac{1}{2} \times \boxed{}$

$\therefore \angle ABC = \boxed{}$

$\therefore$ angle inscribed in a semicircle is a $\boxed{}$

(iii) Complete the following activity to draw a tangent to a circle at a point on the circle :

$\boxed{\text{Draw a circle of radius 4 cm and centre O}}$

$\downarrow$

$\boxed{\text{Take a point P on the circle and draw ray OP}}$

$\downarrow$

$\boxed{\text{Draw a perpendicular line to ray OP at point P}}$

$\downarrow$

$\boxed{\begin{array}{c}\text{Name the perpendicular line as } l, \\ l \text{ is the tangent at point P}\end{array}}$

Q. 2. (B) Solve *any four* of the following subquestions : 8

(i) Identify, with reason, whether (24, 70, 74) is a Pythagorean triplet or not.

(ii) ▢PQRS is cyclic and Q–R–T. If $\angle QPS = 110°$, $\angle QRS = x$ and $\angle SRT = y$, then find the values of x and y.
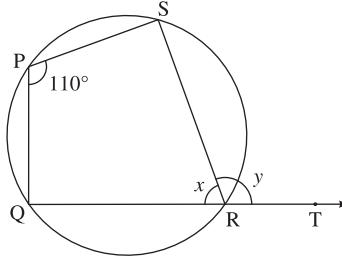

(iii) Find the ratio in which the line segment joining the points A (3, 8) and B (-9, 3) is divided by the Y-axis.

(iv) Draw a circle with centre O and radius 3 cm. Take a point P at a distance 5.7 cm from the centre. Draw tangents to the circle from point P.

(v) $\triangle LMN \sim \triangle RST$, LM $= 3$, MN $= 4$, ST $= 12$, find RS.

Q. 3. (A) Complete and write *any one* of the following activities : 3

(i) In the figure, a rectangle PQRS is inscribed in a circle with centre T. Complete the following activity to prove arc PQ $\cong$ arc SR, arc SP $\cong$ arc QR and arc SPQ $\cong$ arc PQR.
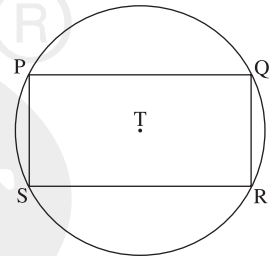
▢ PQRS is a rectangle.

∴ chord PQ $\cong$ chord SR   ... (Opposite sides of a rectangle)

∴ arc PQ $\cong$ arc $\boxed{}$ ... (Arcs corresponding to congruent chords)

chord PS $\cong$ chord QR   ... (Opposite sides of a rectangle)

∴ arc SP $\cong$ arc $\boxed{}$ ... (Arcs corresponding to congruent chords)

∴ measures of arcs SP and QR are equal.

Now, m (arc SP) $+ \boxed{} = \boxed{} + m$ (arc QR)

∴ m (arc SPQ) $= \boxed{}$

∴ arc SPQ $\cong \boxed{}$

(ii) Complete the following activity to find the length of median AD.

Activity :
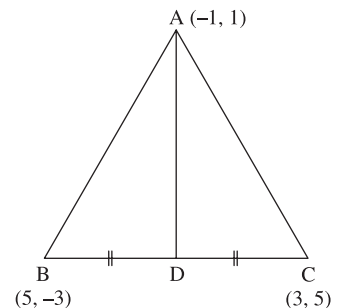
A(-1, 1), B(5, -3), C(3, 5)

Let D(x_1, y_1)

By midpoint formula,

$x_1 = \dfrac{5 + 3}{2}$ $y_1 = \dfrac{-3 + 5}{2}$

∴ $x_1 = \boxed{}$ ∴ $y_1 = \boxed{}$

By distance formula,

$$AD = \sqrt{\left[4 - \boxed{}\right]^2 + (1-1)^2}$$

$$\therefore AD = \sqrt{\boxed{}^2 + 0^2}$$

$$\therefore AD = \sqrt{\boxed{}}$$

$$\therefore AD = \boxed{}$$

Q. 3. (B) Solve *any two* of the following subquestions :   **6**

   (i) Prove : 'In a right angled triangle, the perpendicular segment to the hypotenuse from the opposite vertex, is the geometric mean of the segments into which the hypotenuse is divided.'

  (ii) □ MRPN is cyclic, $\angle R = (5x - 13)°$, $\angle N = (4x + 4)°$. Find the measures of $\angle R$ and $\angle N$.

 (iii) $\triangle PSE \sim \triangle TSV$. In $\triangle PSE$, PS = 4.4 cm, SE = 5.1 cm, PE = 5.5 cm and $\dfrac{PS}{TS} = \dfrac{5}{3}$. Construct $\triangle PSE$ and $\triangle TSV$.
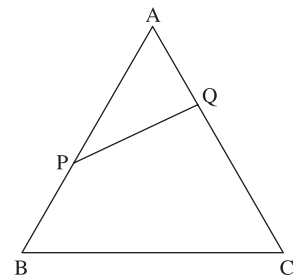
 (iv)
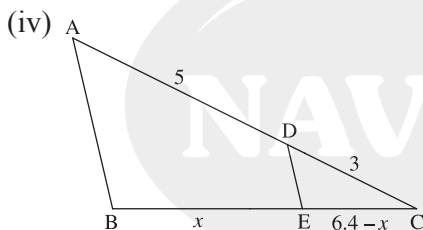
In the figure, A−D−C and B−E−C. seg DE ‖ side AB. If AD = 5, DC = 3, BC = 6.4, then find BE and EC.

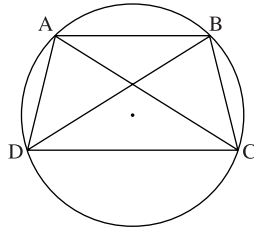## Q. 4. Solve *any two* of the following subquestions :   **8**

  (i) A line cuts two sides AB and AC of $\triangle ABC$ in points P and Q.

Prove : $\dfrac{A(\triangle APQ)}{A(\triangle ABC)} = \dfrac{AP \times AQ}{AB \times AC}$.

(ii)

The diagonals of cyclic quadrilateral ABCD are congruent. Show that $AD = BC$ and seg AB $\parallel$ seg CD.

(iii) $\triangle ABC$ is an equilateral triangle. Point P is on base BC such that $PC = \frac{1}{3}BC$. If $AB = 12$ cm, find AP.

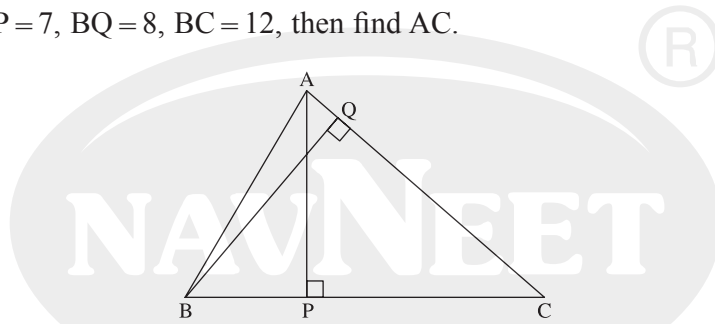## Q. 5. Solve *any one* of the following subquestions : 3

(i) In $\triangle ABC$, $AP \perp BC$,

BQ $\perp$ AC, B$-$P$-$C and A$-$Q$-$C, then

(1) Prove : $\triangle CPA \sim \triangle CQB$.

(2) Write the proportionality of the corresponding sides of $\triangle CPA$ and $\triangle CQB$.

(3) If $AP = 7$, $BQ = 8$, $BC = 12$, then find AC.

(ii) Prove : $\cot^2\theta - \tan^2\theta = \text{cosec}^2\theta - \sec^2\theta$ by following the given steps.

(a) Consider LHS and write the square relation of $\cot^2\theta$ and $\tan^2\theta$.

(b) Simplify and prove it equal to RHS.

Question Paper 1 (Page 473)

Q. 1. (A) (i) (B)   (ii) (A)   (iii) (B)   (iv) (B).

Q. 1. (B) (i) 1 cm   (ii) The value of a is -8.

(iii) $\triangle ABC$ is a right angled triangle, By converse of Pythagoras theorem.

(iv) $\dfrac{A(\triangle ABD)}{A(\triangle ABC)} = \dfrac{3}{7}$.

Q. 2. (A) (i) $\boxed{\angle EDC}$, $\boxed{\text{Common angle}}$, $\boxed{\text{EDC}}$, $\boxed{\text{AA}}$

(ii) $\boxed{\text{AMC}}$, $\boxed{180°}$, $\boxed{90°}$, $\boxed{\text{right angle}}$.

Q. 2. (B) (i) (24, 70, 74) is a Pythagorean triplet as the square of the largest number is equal to the sum of the squares of the other two numbers.

(ii) $x = 70°$, $y = 110°$ (iii) 1 : 3   (v) RS = 9.

Q. 3. (A) (i) $\boxed{\text{SR}}$, $\boxed{\text{QR}}$, $\boxed{\text{m (arc PQ)}}$, $\boxed{\text{m (arc PQ)}}$, $\boxed{\text{m (arc PQR)}}$, $\boxed{\text{arc PQR}}$

(ii) $\boxed{4}$, $\boxed{1}$, $\boxed{-1}$, $\boxed{5}$, $\boxed{25}$, $\boxed{5}$.

Q. 3. (B) (ii) $\angle R = 92°$, $\angle N = 88°$ (iv) BE = 4, CE = 2.4.

Q. 4. (iii) $AP = 4\sqrt{7}$ cm.

Q. 5. (i) $\dfrac{CP}{CQ} = \dfrac{PA}{QB} = \dfrac{CA}{CB}$, AC = 10.5.