CBSE Class 10 Maths Basic Question Paper
Term 2 Exam 2022

Series : PPQQC/2

SET ~ 2

प्रश्न-पत्र कोड
Q.P. Code 430/2/2

रोल नं.
Roll No.

परीक्षार्थी प्रश्न-पत्र कोड को उत्तर-पुस्तिका के मुख पृष्ठ पर अवश्य लिखें ।
Candidates must write the Q.P. Code on the title page of the answer-book.

नोट	NOTE
(I) कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ 12 हैं ।	(I) Please check that this question paper contains 12 printed pages.
(II) प्रश्न-पत्र में दाहिने हाथ की ओर दिए गए प्रश्न-पत्र कोड को छात्र उत्तर-पुस्तिका के मुख-पृष्ठ पर लिखें ।	(II) Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
(III) कृपया जाँच कर लें कि इस प्रश्न-पत्र में 14 प्रश्न हैं ।	(III) Please check that this question paper contains 14 questions.
(IV) कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें ।	(IV) **Please write down the Serial Number of the question in the answer-book before attempting it.**
(V) इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है । प्रश्न-पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा । 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न-पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे ।	(V) 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period. *

गणित (बुनियादी)
MATHEMATICS (BASIC)

निर्धारित समय : 2 घण्टे
Time allowed : 2 hours

अधिकतम अंक : 40
Maximum Marks : 40

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General Instructions :

(i) *This question paper contains 14 questions. **All** questions are compulsory.*

(ii) *This Question Paper is divided into 3 Sections – **Section A, B** and **C**.*

(iii) *Section–**A** comprises of **6** questions (Q. Nos. **1** to **6**) of **2** marks each. Internal choice has been provided in **two** questions.*

(iv) *Section–**B** comprises of **4** questions (Q. Nos. **7** to **10**) of **3** marks each. Internal choice has been provided in **one** question.*

(v) *Section–**C** comprises of **4** questions (Q. Nos. **11** to **14**) of **4** marks each. An internal choice has been provided in **one** question. It also contains **two** case study based questions.*

(vi) *Use of calculator is not permitted.*

SECTION – A

Question Numbers **1** to **6** carry **2** marks each.

1. (a) In Fig. 1, perimeter of ΔPQR is 20 cm. Find the length of tangent PA.

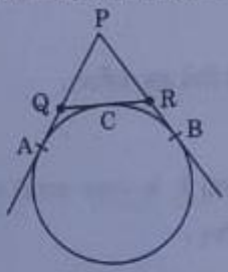

Fig. – 1

OR

(b) In Fig. 2, BC is tangent to the circle at point B of circle centred at O. BD is a chord of the circle so that $\angle BAD = 55°$. Find $m\angle DBC$.

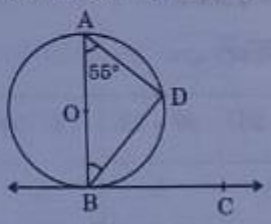

Fig. – 2

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2. Find the mode of the following frequency distribution :

Class :	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency :	25	30	45	42	35

3. Find the sum of the first fifteen multiples of 8.

4. (a) Which term of the A.P. 3, 8, 13, 18, ... is 78 ?

OR

(b) Find the common difference of an A.P. whose n^{th} term is given by $a_n = 6n - 5$.

5. Solve the equation : $3x^2 - 8x - 1 = 0$ for x.

6. 3 cubes each of 8 cm edge are joined end to end. Find the total surface area of the cuboid.

SECTION – B

Question Numbers **7** to **10** carry **3** marks each.

7. Find the mean of the following frequency distribution :

Class :	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency :	4	10	5	6	5

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8. Draw a line segment of length 7.5 cm and divide it in the ratio 1 : 3.

9. (a) As observed from the top of a light house 100 m above sea level, the angle of depression of a ship, sailing directly towards it, changes from 30° to 45°. Determine the distance travelled by the ship during this time.

(Use $\sqrt{3} = 1.73$)

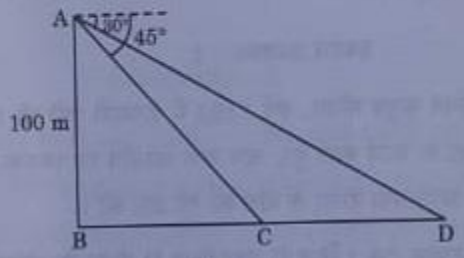

Fig. – 3

OR

(b) At a point on level ground, the angle of elevation of a vertical tower is, found to be α such that $\tan \alpha = \frac{1}{3}$. After walking 100 m towards the tower, the angle of elevation β becomes such that $\tan \beta = \frac{3}{4}$. Find the height of the tower.

10. The median of the following frequency distribution is 35. Find the value of x.

Class :	0 – 10	10 – 20	20 –30	30 – 40	40 – 50
Frequency :	6	3	x	12	19

SECTION – C

Question Numbers **11** to **14** carry **4** marks each.

11. The sum of the ages of a boy and his sister (in years) is 25 and product of their ages is 150. Find their present ages.

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12. (a) ΔABC circumscribes a circle of radius r such that $\angle B = 90°$. If AB = 3 cm and BC = 4 cm, then find the value of r.

OR

(b) Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

Case Study – 1

13. Qutub Minar, located in South Delhi, India was built in the year 1193. It is 72 m high tower. Working on a school project, Charu and Daljeet visited the monument. They used trigonometry to find their distance from the tower. Observe the picture given below. Points C and D represent their positions on the ground in line with the base of tower, the angles of elevation of top of the tower (Point A) are 60° and 45° from points C and D respectively.

(1) Based on above information, draw a well-labelled diagram. 1

(2) Find the distances CD, BC and BD. (use $\sqrt{3} = 1.73$) 3

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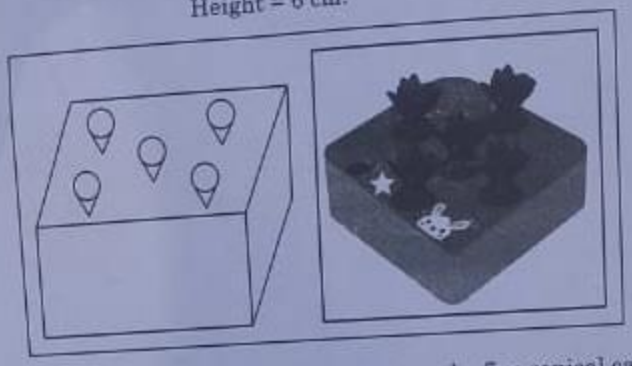
Case Study – 2

14. A solid cuboidal toy is made of wood. It has five cone shaped cavities to hold toy carrots.

The dimensions of the toy are cuboid – 10 cm × 10 cm × 8 cm.

Each cone carved out – Radius = 2.1 cm and

Height = 6 cm.



(1) Find the volume of wood carved out to make five conical cavities. 2

(2) Find the volume of the wood in the final product. 2