*Thakur Educational Trust’s (Regd.)*

Thakur Vidya Mandir High School & Junior College

**IPreliminary Exam 2015-2016**

Std. : **X**  Sub. : **Algebra**  Marks : **40** Date : 03/10/2015 Time : 2 hrs.

**Q.1. Attempt any 5 sub-questions from the following. [5]**

1. Find the third term of the sequence
2. Write the quadratic equation in standard form.
3. Find the value of the given determinants
4. If and . Find
5. Find the roots of given quadratic equation
6. If

**Q.2. Attempt any 4 sub-questions from the following. [8]**

1. Is the sequence 1, 4, 7, 10…….. an A.P. ?
2. Form the quadratic equation if the roots are .
3. Two coins are tossed simultaneously. P is the event of getting no head.
4. If is the solution of . Find the value of
5. For a certain frequency distribution the values of mean & median are 95.8 and 95.6 respectively. Find the value of Mode.

**Q.3. Attempt any 3 sub-questions from the following. [9]**

1. Solve the given quadratic equation by using formula method i)
2. Two digit number are formed from the digits 0,1,2,3,4 where digits are not repeated. Find the probability for each events
3. the number formed is an even number
4. the number formed is greater than 40
5. the number formed is prime number
6. Below is given frequency distribution of dividend in percentage declared by 120 companies.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Dividend in % | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 |
| No. of Companies | 5 | 15 | 28 | 42 | 15 | 12 | 3 |

Obtain mean dividend declared by a company by Assumed Mean Method.

1. Number of students admitted in different faculties of a college are given below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Faculty | Science | Commerce | Arts | Laws | Home Science |
| No. of students | 1000 | 1200 | 650 | 450 | 300 |

Draw a pie diagram representing the above data.

 ….…2/-

: 2 :

**Q.4. Attempt any 2 sub-questions from the following. [8]**

1. Solve the following simultaneous equation.
2. Solve the following equations i)

1. In the given experiment. Write the sample space ‘s’, n(s), n(P), n(Q), Mention the types of events.
2. There are 3 men and 2 women. A Gramswachhatta Committee of two is to be formed. P is the event that the committee should contain at least one woman.

Q is the event that the committee should contain one man and one woman.

**Q.5. Attempt any 2 sub-questions from the following. [10]**

1. If the difference of the roots of the quadratic equation is 5 and the difference of their cube is 215, find the quadratic equation.
2. Represent the following data using Histogram and hence draw frequency polygon.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. of words typed per min | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 |
| No. of typists | 2 | 8 | 15 | 12 | 3 |

1. Some part of a journey of 555 km was completed by a car with speed 60 km/hr. Then the speed is increased by 15 km/hr. and the journey is completed. If it takes 8 hours to reach, find the time taken and distance covered by 60 km/hr. speed.

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**IPreliminary Exam 2015-2016**

Std. : **X**  Sub. : **GEOMETRY** Marks : **40** Date : 28/09/2015 Time : 2 hrs.

**Q.1. Attempt any 5 sub-questions from the following. [5]**

1)Find, where the angle lies, if the terminal arm passes through (5, - 7)

2) What is the length of the diagonal of a square whose side is 4√2 cm?

3) Find volume of cube with side 2 meters.

4) If m= 3 and c=-5, the write the equation of line.

5) If F= 12, V= 20, find the value of E, using Euler’s Formula.

6) If sin A = 1, what is the value of cosec A?

**Q.2. Attempt any 4 sub-questions from the following. [8]**

1) Draw a Seg AB of length 6.3 cm. & bisect it.

2) If (-2, -3) is a point on the line 2y =mx+5, find m.

3) Find the slope of a line passing through the points A (-2, 3) and B (0, 5)

4) ABC ~ PQR & A( ABC) = 81 cm2, If AB =6cm Q

PQ =12 cm then find A ( PQR)

 5) In fig if AQB = 59 0 A

then find M(arc AXB).

 A B

 X

**Q.3. Attempt any 3 sub-questions from the following. [9]**

1. A cylindrical hole of diameter 30 cm. is bored through a cubical wooden block with side 1 m. Find the volume of the object so formed.

(Given Π = 3.14)

1. Three circles having centers A, B & C are touching each other externally. If AB = 5cm, AC = 4cm. BC = 5cm, then find radii of the circles.
2. Construct a circumcircle of XYZ in which XY =5.5 cm X = Y= 700.
3. Prove that : If a line parallel to a side of a triangle ; intersects the other sides in two distinct points then the line divides those side in proportion.

**Q.4. Attempt any 2 sub-questions from the following. [8]**

1) In the figure XY parallel to AC and divides the triangular region ABC into

two equal areas. Determine AX : AB . A

 X

 B Y C

2) A man on a cliff observes a boat at an angle of depression 300, which is

sailing towards the point of the shore immediately beneath him. Three

minutes later the angle of depression of the boat is found to be 600.

Assuming that the boat sails at a uniform speed, determine how much

more time it will take to reach the shore.

3) The volume of a cone of height 5 cm is 753.6 cm3. This cone and cylinder

have equal radii and height . Find the total surface area of cylinder (Π = 3.14)

**Q.5. Attempt any 2 sub-questions from the following. [10]**

1) Show that : sinA – cos A + 1 = 1 1

 sinA + cosA – 1 secA – tanA

2) ∆ ABC ~∆DEF , In ∆DEF DE= 5.5 cm, E = 40 , EF = 4.0 cm and

AB = 6 then construct ∆ABC.

DE 5

3) Two poles of height ‘a’ meters and ‘b’ meters

are ‘p’ meters apart. Prove that the height ‘h’

drawn from the point of intersection N of the lines

joining the top of each pole to the foot of the opposite pole is

 ab meters.

a+b

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**IPreliminary Exam 2015-2016**

Std. : **X**  Sub. : **GENERAL MATHS II** Marks : **40** Date : 28/09/2015 Time : 2 hrs.

**Q.1. Attempt any 5 sub-questions from the following. [5]**

1) State Basic proportionality theorem.

2) ∆ MPL ~ ∆ NQL, MP = 2, LM = 6, find LN

 NQ 3

3)Explain SSS test for similarity of two triangles.

 R

4) In the figure, RD = 4, DS = 9, find PD

5) The radius of a circle is 6 cm., find the length of largest chord of the circle

6) If sin A = 1, what is the value of cosec A?

**Q.2. Attempt any 4 sub-questions from the following. [8]**

1) Draw a Seg AB of length 6.3 cm. & bisect it.

2) Diagonal of square is  cm. Find its side.

3) Find the distance between the centers of the circles with radii 5 cm. and 7 cm.

If, i) they are touching externally

 ii) they are touching internally.

4) The length, breadth and height of a wooden box are 25cm, 15cm, and 10cm respectively. Find surface area of its vertical faces.

5) Find the value of cos 600 X sin 300 +sin600 X cos 300 .

**Q.3. Attempt any 3 sub-questions from the following. [9]**

1) The shadows of pole of height 2 m. and a tree of certain height are seen on the plane ground. Their lengths were found to be 3m and 5.7m respectively, then find the height of tree.

2)A Chord CD of a circle with centre O is bisected

 at P by the diameter AB. If AB = 30, OP = 9,

 Calculate the lengths of i) CD ii)AD iii)BC

3) Construct in circle of ∆ PQR in which QR = 6.1 cm., PR = 7.2 cm., and ∠QRP = 55°

 4) Volume of a cone is 1256 cm3 and radius is 10 cm. Find its height. (∏ = 3.14)

**Q.4. Attempt any 2 sub-questions from the following. (8)**

1. In ∆ABC ~ ∆PQR and AB = 1 and the perimeter of ∆ABC is 30 cm. then find

 PQ 2

the perimeter of ∆PQR.

2) State and prove theorem of 45° - 45° - 90° triangle.

3) Prove that opposite angles of a cyclic quadrilateral are supplementary.

**Q.5. Attempt any 2 sub-questions from the following. [10]**

1. Draw a circle with centre P and radius 2.9 cm. Point R is at a distance 7 cm from P.

Draw tangents to the circle from point R.

1. Side of a cube is 6cm. A cuboid of length 8 cm. and breadth 6 cm. is made by

melting the cube. Find total surface area of cuboid.

1. P and Q are the points on the sides AB and AC of ∆ABC such that PQ ║BC and

 PQ : BC = 3:5 . Find A( ∆ APQ ) : A ( □ PBCQ ) .

 ALL THE BEST