THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 1 Real Numbers

Q1. The (HCF x LCM) for the numbers 50 and 20 is : 1

a) 10 b) 100 c) 1000 d) 50

Q2. If two positive integers a and b are written as $a = x^2 y^2$ and $b = xy^2$. Where x,y are prime numbers, then HCF (a,b) is : 1

1. xy b) xy^2 c) x^2y^2 d) x^2y^3

Q3. Given that LCM (91,26) = 182, then HCF (91,26) is : 1

1. 13 b) 26 c) 17 d) 9

Q4. If d = HCF (48,72), the value of d is : 1

1. 24 b) 48 c) 12 d) 72

Q5. If HCF (a,8) = 4, LCM (a,8) = 24, then a is : 1

1. 8 b) 10 c) 12 d) 14

Q6 Is 7 x 6 x 5 x 4 x 3 x 2 x 1 + 7 composite numbers? Justify your answer. 2

Q7 Explain why 11 x 13 x 15 x 17 + 17 is a composite number? 2

Q8 Find the HCF and the LCM of a and b, for the numbers $a = 2^5 \times 3^7 \times 5^2 \times 7$ and $b = 2^3 \times 3^2 \times 5^6 \times 11$. 2

Q9 Explain why (7) (11) (13) + 13 is a composite number. 2

Q10 Three bells toll at intervals of 9,12,15 minutes respectively. If they start tolling together, what time will they next toll together? 2

Q11 Write the denominator of 91/1250 in the form 2^n5^m, where n, m are non-negative integers. Also write its decimal expansion without actual division. 2

Q12 Prove that : $\frac{1}{2+\sqrt{3}}$ is an irrational number. 3

Q13 Prove that : (1) $2\sqrt{3}-7$ and (ii) $3+5\sqrt{2}$ are irrational numbers. 3

Q14 Show that any positive odd integer is of the form 4q + 1 or 4q + 3, where q is some positive integer. 3

Q15 Use Euclid's Division Algorithm to find the HCF of : 3

1. 608,544 b) 638,783 c) 425,476

Q16 The HCF and the LCM of two numbers are 9 and 90, respectively. If one number is 18, find the other. 3

Q17 Prove that $\sqrt{3} + \sqrt{5}$ is an irrational number. 4

Q18 Use Euclid's Division Algorithm to find the HCF of 726 and 275 and express it in the form 726m + 275n. 4

Q19 Use Euclid's Algorithm to find the HCF of 595 and 252 and express it in the form 595m + 252n. 4

Q20 A class of 20 boys and 15 girls is divided into n groups so that each group has x boys and y girls. Find x,y and n. What values are referred in a class. 4

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CLASS 10 SUBJECT Mathematics CHAPTER- 2 Polynomials

Q1.	If on division of a polynomial p(x) by a polynomial g(x), the quotient is zero, what is the relation between the degrees of p(x) and g(x).	1
Q2.	Find the quadratic polynomial whose zeros are -3 and 4.	1
Q3.	If one zero of the polynomial $x^2 - 5x - 6$ is 6 then find the other zero.	1
Q4.	What number should be added to the polynomial $x^2 - 5x + 4$ so that 3 is the zero of the polynomial?	1
Q5.	If one of the zeros of the polynomial $f(x) = 4x^2 - 8kx - 9$ is equal in magnitude but opposite in sign of the other, then find the value of k.	2
Q6	If one of the zeros of the polynomial $(k-1)x^2 + kx + 1$ is -3 then find the value of k.	2
Q7	If α and β are the zeros of the polynomial $f(x) = x^2 - 5x + 6$ then find the value of $\alpha + \beta - 3\alpha\beta$.	2
Q8	Find the zeros of the quadratic polynomial $p(x) = 4x^2 - 12x + 9$	2
Q9	If α and β are the zeros of the polynomial $f(x) = x^2 + x - 1$ then find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$	2
Q10	If 1 is a zero of the polynomial $f(x) = ax^2 - 3(a-1)x - 1$ then find the value of a.	2
Q11	Find the quadratic polynomial whose sum and product of zeroes are -1/4 and ¼.	2
Q12	Find the quadratic polynomial whose sum and product of zeroes are $\sqrt{2}$ and 1/3.	2
Q13	Find the zeros of the quadratic polynomial $6x^2 - 3 - 7x$	3
Q14	Check whether the first polynomial is a factor of the second by dividing the second by first $x^2 + 3x + 1$, $3x^4 + 5x^3 - 7x^2 + 2x + 2$	3
Q15	If α and β are the zeros of the polynomial $f(x) = 2x^2 - 5x + 7$ then find a polynomial whose zeroes are $2\alpha + 3\beta$ and $3\alpha + 2\beta$.	3
Q16	What must be subtracted from $p(x) = 8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $g(x) = 4x^2 + 3x - 2$	3
Q17	Obtain the zeroes of polynomial $\sqrt{3}x^2 - 8x + 4\sqrt{3}$ and verify the relation between its zeroes and coefficients.	3
Q18	If α and β are the zeros of the polynomial $6y^2 - 7y + 2$ then find a polynomial whose zeroes are $\frac{1}{\alpha} + \frac{1}{\beta}$	3
Q19	If one of the zeros of the polynomial $3x^2 - 8x + 2k + 1$ is seven times the other then find the value of k.	3
Q20	If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $(x^2 + 5)$, the remainder comes out to be $(px + q)$. Find the value of p and q.	3
Q21	What must be added to $p(x) = 84 + 2x^3 - 2x^2 + x - 1$ so that the resulting polynomial is exactly divisible by $g(x) = x^2 + 2x - 3$.	4
Q22	If one of the zeros of the polynomial $2x^2 + 3x + \lambda$ is 1/2 then find the value of λ and the other zero.	4
Q23	If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other then find the value of a.	4
Q24	Obtain all the other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$	4
Q25	If α and β are the zeros of the polynomial $6x^2 + x - 1$ then find the value of $\alpha^3\beta + \alpha\beta^3$	4
Q26	Given that $\sqrt{3}$ is a azero of the polynomial $x^3 + x^2 - 3x - 3$, find its other two zeroes.	4
Q27	If two zeroes of the polynomial $x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$, find the other zeroes.	4
Q28	If the polynomial $ax^3 + bx - c$ is divisible by the polynomial $x^2 + bx + c$ then find the value of ab.	4

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CLASS 10 SUBJECT Mathematics CHAPTER- 3 Pair of Linear Equations in two variables

Q1. Find the co-ordinate where the line $x - y = 8$ will intersect y-axis. 1

Q2. If one zero of the polynomial $x^2 - 5x - 6$ is 6 then find the other zero. 1

Q3. Do the equation $4x + 3y - 1 = 5$ and $12x + 9y = 15$ represent a pair of coincident lines? 1

Q4. 1

Q5. Is the following pair of linear equations consistent? Justify your answer. 2

$2ax + by = a$ and $4ax + 2by - 2a = 0$

On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out whether the following pair of linear equations are consistent or not:

Q6 $\frac{3}{2}x + \frac{5}{3}y = 7$; $9x - 10y = 14$ 2

Q7 $5x - 4y + 8 = 0$; $7x + y - 9 = 0$ 2

Q8 $\frac{4}{3}x + 2y = 8$; $2x + 3y = 12$ 2

Q9 $9x + 3y + 12 = 0$; $18x + 6y + 24 = 0$ 2

Q10 $6x - 3y + 10 = 0$; $2x - y + 9 = 0$ 2

Q11 Find k for which the lines $(k + 1)x + 3ky + 15 = 0$ *and* $5x + ky + 5 = 0$ are coincident. 2

Q12 For which value of k will the pair of equations $kx + 3y = k - 3, 12x + ky = k$ have no solution 2

Q13 Solve: $ax + by = a - b$ and $bx - ay = a + b$ 3

Q14 Solve: $152x - 378y = -74$ and $-378x + 152y = -604$ 3

Q15 For which values of a and b does the following pair of linear equation shave an infinite number of solutions:- 3

$2x + 3y = 7$; $(a - b)x + (a + b)y = 3a + b - 2$.

Q16 Find whether the following pair of linear equations has a unique solution. If yes, find the solution. 3

$7x - 4y = 49$ and $5x - 6y = 57$

Q17 In $\Delta ABC, \angle A = x, \angle B = 3x$ *and* $\angle C = y$ if $3y - 5x = 30°$, show that the triangle is right angled. 3

Q18 Solve for x and y: $\frac{6}{x-1} - \frac{3}{y-2} = 1$; $\frac{5}{x-1} + \frac{1}{y-2} = 2$ 3

Q19 Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. what are their present ages. 3

Q20 A fraction becomes 1/3 when 1 is subtracted from the numerator and it becomes ¼ when 8 is added to its denominator. Find the fraction. 3

Q21 Show graphically that $2x + 4y = 10$ and $3x + 6y = 12$ has no solution. 4

Q22 Solve by elimination as well as substitution method: $3x - 5y - 4 = 0$ and $9x = 2y + 7$ 4

Q23 The sum of a two-digit number and the number formed by interchanging the digits is 110. If 10 is subtracted from the first number, the new no. is 4 more than 5 times the sum of digits of the first no. Find the first no. 4

Q24 Jamila sold a table and a chair for Rs. 1050, thereby making a profit of 10% on the table and 25% on the chair. If she had taken a profit of 25% on the table and 10% on the chair she would have got Rs.1065. Find C.P. of each 4

Q25 8 men and 12 boys can finish a work in 10 days while 6 men and 8 boys can finish it in 14 days. Find the time taken by one man alone and one boy alone to finish the work. 4

Q26 Solve graphically and shade the region between the lines and the x-axis: 4

$3x + 2y - 4 = 0$; $2x - 3y - 7 = 0$

Q27 The cost of 4 pens and 4 boxes is Rs. 100. Three times the cost of a pen is Rs. 15 more than the cost of a box. Find the cost of a pen and a box. 4

Q28 Determine graphically, the vertices of the triangle formed by the lines: $y = x; 3y = x; x + y = 8$ 4

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CLASS 10 SUBJECT Mathematics Chapter 4 Quadratic Equations

Q1.	Find 'b' if the discriminant of the equation $6x^2 - bx + 2 = 0$ is 1.	1
Q2.	Find the roots of the equation: $\sqrt{2x^2 + 9} = 9$	1
Q3.	If ½ is the root of the equation $x^2 + kx - \frac{5}{4} = 0$, then find the value of k.	1
Q4.	For what value of 'k' the equation $kx^2 + x + k = 0$ has equal roots.	1
Q5.	If the equation $kx^2 - 2kx + 6 = 0$ has equal roots, then find the value of k.	2
Q6	Solve for x: $10x - \frac{1}{x} = 3$	2
Q7	Find the roots of the equation: $15x^2 - 10\sqrt{6}x + 10 = 0$	2
Q8	Find the nature of the roots of the quadratic equation: $13\sqrt{3}x^2 + 10x + \sqrt{3} = 0$	2
Q9	Solve for x: $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$	2
Q10	Find the roots of the equation $3x^2 - 2\sqrt{6}x + 2 = 0$ by factorization.	2
Q11	Solve for x: $abx^2 + (b^2 - ac)x - bc = 0$	2
Q12	Determine the roots of the equation: $4\sqrt{5}x^2 - 17x + 3\sqrt{5} = 0$	2
Q13	Find the roots of the equation $ax^2 + a = a^2x + x$	3
Q14	Solve for x:$4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$	3
Q15	Determine the positive values of 'k' for which the equation $x^2 + kx + 64 = 0$ and $x^2 - 8x + k = 0$ will both have real and equal roots.	3
Q16	Find the nature of the roots of the equation: $3x^2 - 4\sqrt{3}x + 4 = 0$. If the roots exist, find them.	3
Q17	If the roots of the equation $(b - c)x^2 + x(c - a) + a - b = 0$ are equal the prove that $2b = a + c$	3
Q18	The sum of the squares of two consecutive natural numbers is 421. Find the numbers.	3
Q19	Solve for x: $\frac{x+1}{x-1} + \frac{x-2}{x+2} = 3; x \neq 1, -2$	3
Q20	Find the roots of the equation $5x^2 - 6x - 2 = 0$ by using quadratic formula.	3
Q21	A train takes two hours less for a journey of 300 km if its speed is increased by 5 km/hr from its usual speed. Find the usual speed of the train.	4
Q22	The length of the sides forming right angle of a right triangle are $5x$ cm and $(3x - 1)$ cm. If the area of the triangle is 60 cm^2, find its hypotenuse.	4
Q23	Rs. 6500 were divided equally among a certain number of persons. Had there been 15 more persons, each would have got Rs. 30 less. Find the original number of persons.	4
Q24	The denominator of a fraction is two more than its numerator. If the sum of the fraction and its reciprocal is 34/15, find the fraction.	4
Q25	A takes 6 days less than the time taken by B to finish a piece of work. If both, A and B together can finish it in 4 days, find the time taken by B to finish the work.	4
Q26	A motor boat, whose speed is 15 km/hr in still water, goes 30 km downstream and comes back in a total of 4 hours and 30 mins. Determine the speed of the stream.	4
Q27	Two water taps together can fill a tank in $2\frac{11}{12}$ hrs. The tap of smaller diameter takes 2 hours more than the larger one to fill the tank separately. Find the time in which each tap can separately fill the tank.	4
Q28	A dealer sells a toy for Rs 24 and gains as much percent as the cost price of the toy. (i) Find the cost price of the toy. (ii) Which mathematical concept is used in the above problem? Which value is depicted in this problem?	4

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CLASS 10 SUBJECT Mathematics Chapter 5 Arithmetic Progression

Q1.	If $18, a, b, -3$ are in A.P., then find $a + b$.	1
Q2.	Find the next term of the A.P. $3, 1, -1, -3$	1
Q3.	Find the first four terms of an A.P. whose first term is -2 and common difference is -2.	1
Q4.	For what value of 'k' ; $k + 2, 4k - 6, 3k - 2$ are three consecutive terms of an A.P.	1
Q5.	Which term of the A.P. $120, 116, 112,$ ... .is its first term?	2
Q6	Is 184 a term of the sequence $3, 7, 11,$ ... ...?	2
Q7	If the numbers $x + 3, 2x + 1$ and $x - 7$ are in A.P., find the value of x.	2
Q8	Find if 100 is a term of the A.P. $25, 28, 31,$ ... .. or not.	2
Q9	Which term of the A.P. 3, 10, 17, ...will be 84 more than its 13^{th} term?	2
Q10	If five times the fifth term of an A.P. is equal to eight times its eighth term, show that its 13^{th} term is zero.	2
Q11	Find the value of a, b, and c, such that the numbers a, 10, b, c, 31 are in A.P.	2
Q12	The 8^{th} term of an A.P. is zero. Prove that its 38^{th} term is triple of its 18^{th} term.	2
Q13	Find the 10^{th} term from the end of A.P. 4, 9, 14, ..., 254.	3
Q14	If S_n denotes the sum of n terms of an A.P. whose common difference is d and first term is a, find $S_n-2S_{n-1}+S_{n-2}$	3
Q15	How many three digit numbers are such that when divided by 7, leave a remainder 3 in each case.	3
Q16	The sum of all terms of the A.P. $-4, -1, 2, 5, \ldots, x$ is 437, find x.	3
Q17	Find the sum of the integers between 100 and 200 that can be divided by 6.	3
Q18	How many terms of the A.P. : $9, 6, 3, 0, -3,$ ... .. will be needed to give the sum (-216).	3
Q19	The sum of first n terms of an A.P. is given by $S_n=3n^2-4n$. Determine the A.P. and the 12^{th} term.	3
Q20	How many multiples of 4 lie between 11 and 266?	3
Q21	A sum of Rs. 280 is to be used to award four prizes. If each prize after the first is Rs. 20 less than its preceding prize, find the value of each of the prizes.	4
Q22	If the sum of first m terms of an A.P.is same as the sum of its first n terms, show that the sum of its first (m+n) terms is zero; $(m \neq n)$.	4
Q23	A man repays a loan of Rs.3250 by paying Rs 20 in the first month and then increases the payment by Rs. 15 every month. How long will it take him to clear the loan?	4
Q24	Find the sum of 30 terms of an A,P. in which third term is 11 and 10^{th} term is one more than twice the 5^{th} term.	4
Q25	The sum of the 3^{rd} and 7^{th} terms of an A.P. is 6 and their product is 8. Find the sum of first 20 terms of the A.P.	4
Q26	An A.P. has 21 terms. The sum of 10^{th}, 11^{th}, and 12^{th} terms is 129 and the sum of last 3 terms is 237. Find the A.P.	4
Q27	A spiral is made up of successive semi circles with centres alternately at A and B starting with A, of radii 1 cm, 2 cm, 3 cm, ……. What is the total length of spiral made up of eleven consecutive semi circles?	4
Q28	If S_1, S_2, S_3 be the sum of $n, 2n, 3n$ terms resp. of an A.P. Prove that $S_3=3(S_2-S_1)$.	4

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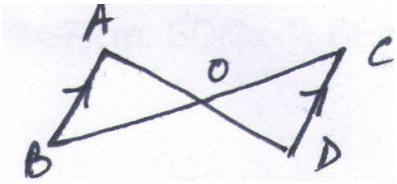
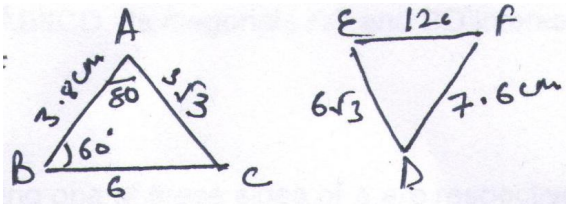
CLASS 10 SUBJECT Mathematics CHAPTER- 6 Triangles

Q1. Find whether the sides of the Δ, as given below form a right Δ or not. 7 cm, 24cm and 25cm. 1

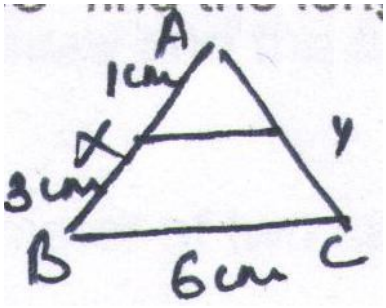
Q2. In the given figure ABIICD. Prove that 1



Q3. In the adjoining figure find <F 1



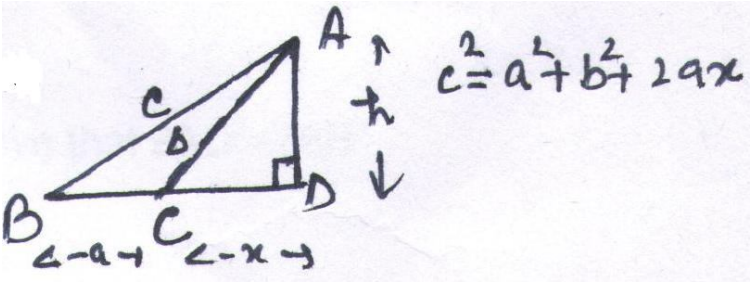
Q4. If XY II BC find the length of XY 1



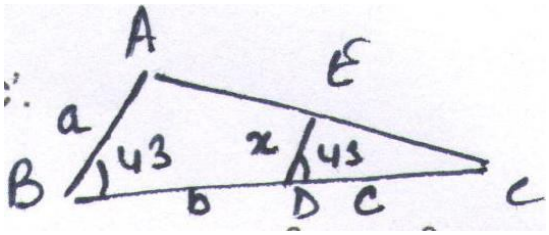
Q5. Prove that the area of an equilateral Δ described on one side of a square is equal to half the area of an equilateral Δ described on one of its diagonal. 2

Q6. Two poles of heights 6 m and 11m stand vertically on a plane ground if the distance between the feet is 12 metres. Find the distance between their tops. 2

Q7. In ΔABC, AD is perpendicular to BC produced prove that : 2



Q8. Find x in terms of ‘a’, ‘b’, ‘c’. 2



Q9. Δ ABC is an isosceles Δ with AC= BC. If $AB^2 = 2AC^2$. Prove that ΔABC is a right Δ? 2

Q10. Given ΔABC and ΔDEF are similar, the areas of ΔABC is 9sq.cm and that of ΔDEF is 16sq.cm. If EF = 4.2cm. Find BC? 2

Q11. Prove using similar Δ that the line joining the mid points of two sides of a Δ is parallel to the third side. 2

Q12 If D and E are points on the side AB and AC of ΔABC such that AB = 12cm, AD = 8 cm, AE = 12cm, AC= 18cm, show that DEIIBC. 2

Q13 The bisectors (internal) of an angle of Δ divides the opposite side internaly in the ratio of the sides containing the angle. 3

Q14 In ΔABC, DEIIBC so that AD = (4x-3)cm, AE = (8x-7), BC (3x-1) CE = (5x-3) cm find the value of X? 3

Q15 ABCD is a trapezium such that ABIICD. Its diagonals AC and BD intersect each other at O prove that $\frac{AO}{OC} = \frac{BO}{OD}$ 3

Q16 Two sides and a median bisecting one of theses sides of Δ are respectively proportinal to the two sides and the corresponding median of the other Δ prove that the Δ are similar. 3

Q17 The perimeter of two similar Δs are 25 cm and 15 cm respectively. If one side of the first Δ is 9 cm. Find the correspoding side of the second Δ. 3

Q18 A lamp is 3.3cm above the ground. A boy 110cm tall walks away from the base of this lamp post at a speed of 0.8m/s find the length of the shadow of boy after 4 seconds. 3

Q19 Prove that the ratio of the areas of two similar Δ is equal to ratio of the squares of the corresonding altitudes. 3

Q20 The side BC of an equilated ΔABC is trisected at D Prove that $9AD^2 = 7AB^2$. 3

Q21 Prove that the sum of squres of the diagonals of a parallelogram is equal to sum of square of its sides. 4

Q22 ABCD is a trapezium in which ABIIDC and PandQ are points on AD and BC respectively such that PQIIDU. If PD = 18cm, BQ= 35cm, QC= 15cm, Find AD? 4

Q23 In Δ PQR, N is the point on PR such that QN⊥PR. If $PNXR = QN^2$ prove that $<PQP = 90^0$. 4

Q24 The perpendicular AD on the base BC of a ΔABC intersects BC at D, so that DB = 3CD prove that $2AB^2 = 2AC^2 + BC^2$. 4

Q25 ABC is a right Δ , right angles at C. If P is the length of perpendicular from C to AB, AB = C BC = a, CA = b prove : 4

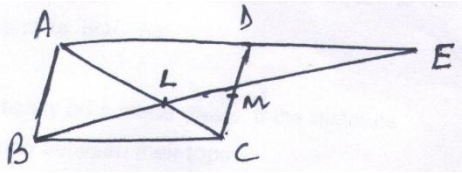
1. PC = ab

2. $\frac{1}{P^2} = \frac{1}{a^2} + \frac{1}{b^2}$

Q 26 Prove that the ratio of the areas of two similar Δ is equal to the ratio of the square of their correspoding medians. 4

Q27 Two sides and a median bisecting the thrid side are respectively proportional to the two sides andcorresponding median of another Δ. Prove that the Δ are similar. 4

Q28 Through the mid-point M of the side CD of a parallelogram ABCDthe line BM is drawn, intersecting AC in L and AD produced in E prove that EL = 2BL. 4



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CLASS 10 SUBJECT Mathematics CHAPTER-7 Coordinate Geometry

Q1. If the points (k, 2k), (3k,3k) and (3,1) are collinear. Then k : 1

1. -1/3 b) 1/3 c) -2/3 d) 2/3

Q2. If points (a,0), (0,b) and (1,1) are collinear, then 1/a + 1/b = : 1

1. -1 b) 1 c) 0 d) 2

Q3. The area of the triangle formed by (a,b+c), (b,c+a) and (c,a+b) so : 1

1. 0 b) abc c) $(a+b+c)^2$ d) None of these

Q4. If the point A (1,2), O (0,0) and C (a,b) are collinear, then : 1

1. a = b b) a = 2b c) 2a = b d) a = -b

Q5. The point which divides the line segment joining the points (7,-6) and (3,4) in ratio 1:2 internally lies in the 1

1. 1 quadrant b) II quadrant c) III quadrant iv) IV quadrant

Q6 The fourth vertex D of a parallelogram ABCD whose three vertices are A (-2,3), B (6,7) and C (8,3) is : 1

1. (0,1) b) (0,-1) c) (-1,0) d) (1,)

Q7 If P $\left(\frac{a}{3}, 4\right)$ is the mid-point of the line segment joining the points Q (-6,5) and R (-2,3), then the value of a is : 1

1. -4 b) -12 c) 12 d) -6

Q8 Find the value of 'k' for which the point (8,1) , (k,-4) and (2,-5) are collinear. 2

Q9 Find the ratio in which the point $\left(\frac{-2}{7}, \frac{-20}{7}\right)$ divides the join of (-2,-2) and (2,-4). 2

Q10 Find the coordinates of a point on x axis which divides the line segment joining the points (-2,-3) and (1,6) in the ratio 1:2. 2

Q11 Three consecutive vertices of a parallelogram ABCD are A (1,2), B (1,0) and C (4,0). Find the fourth vertex D. 2

Q12 In what ratio is the line segment joining the points (-2,-3) and (3,7) divided by y – axis? 2

Q13 Find the ratio in which the y-axis divides the join of (5,-6) and (-1, -4). 2

Q14 A point P is a distance of $\sqrt{10}$ from the point (2,3). Find the coordinates of the point P if its y coordinate is twice its x coordinate? 2

Q15 Find the coordinates of the point B, if the point P(-4,1) divides the line segment joining the points A (2,-2) and B in the ratio 3:5. 2

Q16 Find the value of x such that PQ = QR where P,Q and R are the points (2,5), (x-3) and (7,9) respectively. 2

Q17 The points A (3,2) and B (2,-3) are equidistant from a point P (x,y), find the relation between x and y. 2

Q18 In what ratio does the point P (2,-5/6) divide the line segment joining the points A (-3,5) and B (3,-2). 3

Q19 If vertices of triangle are (2,4), (5,k), (3,10) and its area is 15 square units, find value of k. 3

Q20 Find a relation between x and y such that the point P (x,y) is equidistant from the points A (3,6) and B (-3,4) 3

Q21 Determine the ratio in which the point (-6,a) divides the join to A (-3,1) and B (-8,9). Also, find the value of a. 3

Q22 For what value of x, the points A (1,2), B (-4,7) and C (x,1) are collinear? 3

Q23 Determine the ratio in which the line 3x + y – 9 = 0 divides the line segment joining the points (1,3) and (2,7). 3

Q24 Find a relation between x and y such that the point P (x,y) is equidistant from the points A(2,5) and B (-3,7) 3

Q25 The base BC of an equilateral triangle ABC lies on y-axis. The coordinates of the point C are (0.-3). If origin is the mid point of BC, find the coordinates of point A and B. 3

Q26 Find the area of the triangle formed by joining the mid points of the sides of then triangle whose vertices are (0,-1), (2,1), (0,3) 3

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 8 & 9 TRIGNOMETRY

General Instructions : Question No 1 to 20 are of three marks each.
Question No.21 to 30 are of four marks each.

Q1.Prove that $\frac{\tan A + \tan B}{\cot A + \cot B} = \tan A \tan B$

Q2. Prove that $\frac{\tan A + \sec A - 1}{\tan A - \sec A + 1} = \frac{1 + \sin A}{\cos A}$

Q3.Prove that $\frac{\tan A}{1-\cot A} + \frac{\cot A}{1- \tan A} = 1 + \tan A + \cot A = \sec A + \operatorname{cosec} A + 1$

Q4.Prove that $(1 + \cot A - \operatorname{cosec} A)(1 + \tan A + \sec A) = 2.$

Q5. Prove that $\tan^2 A + \cot^2 A + 2 = \sec^2 A . \operatorname{cosec}^2 A$

Q6. Prove that $\frac{(\sec A - \tan A)^2 + 1}{\operatorname{cosec} A (\sec A - \tan A)} = 2 \tan A$

Q7.Prove that $\frac{\sin A - \sin B}{\cos A + \cos B} + \frac{\cos A - \cos B}{\sin A + \sin B} = 0$

Q8. Prove that $(\cos A + \sec A)^2 + (\sin A + \operatorname{cosec} A)^2 = 7 + \tan^2 A + \cot^2 A$

Q9. Prove that $\frac{\cot A}{\operatorname{cosec} A + 1} + \frac{\operatorname{cosec} A + 1}{\cot A} = 2 \sec A$

Q10. Prove that $(\sin A + \sec A)^2 + (\cos A + \operatorname{cosec} A)^2 = (1 + \sec A \operatorname{cosec} A)^2$

Q11. Prove that $\frac{\sin A}{1 - \cos A} + \frac{\tan A}{1 + \cos A} = \sec A . \operatorname{cosec} A + \cot A$

Q12. Prove that $(\operatorname{cosec} A - \sin A)(\sec A - \cos A) = \frac{1}{\tan A + \cot A}$

Q13.Evaluate $\frac{\cot 58^0}{\tan 32^0} + \frac{\cos 59^0}{\sin 31^0} + \sin^2 50^0 + \sin^2 40^0 - 8 \sin^2 30^0.$

Q14. Evaluate $\sec^2 32^o - \cot^2 58^o + \frac{\cot 15^o}{\tan 75^o} - \frac{\cos 27^o}{\sin 63^o} + 2 \sin^2 45^o.$

Q15. Evaluate $\frac{\sin 40^o}{\cos 50^o} + \frac{\sec^2 35^o}{\operatorname{cosec}^2 55^o} + \tan 20^o . \tan 40^o . \tan 45^o . \tan 50^o . \tan 70^o$

Q16. Simplify : $\sin^2 68^o + \sin^2 22^o + \tan 10^o \tan 25^o \tan 60^o \tan 65^o \tan 80^o + \frac{\sin 70^o}{\cos 20^o} + \frac{\sec^2 65^o}{\operatorname{cosec}^2 25^o}$

Q17. a) If $\cos(20 + x)^\circ = \sin 60^\circ$, then find the value of x.

b) If $2\sin(3x - 15)^\circ = \sqrt{3}$, then find the value of $\tan^2(x + 5)^\circ + \sin^2(2x + 15)^\circ$

Q18. If $\text{Sin A} + \text{Tan A} = m$ & $\text{Tan A} - \text{Sin A} = n$ then prove that $m^2 - n^2 = 4\sqrt{mn}$

Q19.(a) If $3\text{Cos}^2 A + 7\text{Sin}^2 A = 4$, find the value of tan A .

(b) If $\text{CosA} + \text{SinA} = \sqrt{2}\,\text{CosA}$ then prove that $\text{CosA} - \text{SinA} = \sqrt{2}\,\text{Sin A}$

Q20. If $x = r \sin A \cos B$; $y = r \sin A \sin B$ and $z = r \cos A$ prove that $r^2 = x^2 + y^2 + z^2$.

Q21. The shadow of a vertical tower on a level ground increases by 10 m when the attitude of the sun changes from 45^0 to 30^0. Find the height of the tower correct to two decimal places.

Q22. An aeroplane is flying at a height of 3000 m above the ground is observed at an elevation of 45^0 from a point on the ground. After 15 seconds, the angle of elevation from the same point on ground changes to 30^0. Find the speed of the aeroplane in km/hr.

Q23.From the top of a cliff 90 m high, the angles of depression of the top and bottom of a tower are observed to be 30^0 and 60^0 respectively. Find (i) the height of the tower (ii) horizontal distance between the cliff and Tower

Q24. From the top of a tower, the angles of depression of the top and the bottom of a building are found to be 30^0 and 60^0 respectively. If the height of the building is 45 metres, find the height of the tower.

Q25. A person standing on the bank of a river observes that the angle of elevation of the top of a tree standing on the opposite bank of 60°. When he moves 50m away from the bank he finds the angle of elevation to be 30°. Calculate (i) the width of the river, (ii) the height of the tree.

Q26.A 1.2 m tall girl spot a balloon moving with the wind in a horizontal line at a height of 88..2 m from theground. The angle of elevation of the balloon from the eyes of the girl at any instant is 60°. After sometime, the angle of elevation reduces to 30°. Find the distance traveled by the balloon during the interval.

Q27. The angle of elevation of the top of a rock from the top and the foot of a 100 m high tower are 30° and 45° respectively. Find the height of the rock and the distance between the rock and the tower

Q28. The angle of elevation of the top of a rock from the top and the foot of a 100 m high tower are 30° and 45° respectively. Find the height of the rock and the distance between the rock and the tower.

Q29. The angle of elevation of the top of a tower from the points P & Q at distances a & b respectively, from the base and on the same side are found to be complimentary. Prove that the height of tower is $\sqrt{ab}$.

Q30. Two pillars of equal heights stand on either side of a road which is 150 m wide. At a point on the road between the pillars , the angle of elevation of the tops of the pillars are 60° and 30° . Find the height of the pillars and the position of the point on the road.

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

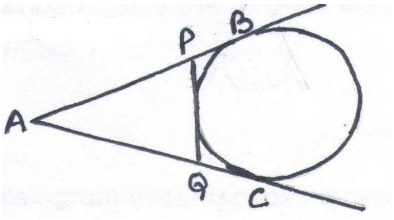
CLASS 10 SUBJECT Mathematics CHAPTER- 10 Circles

Q1. From a point Q, 39cm away from the centre of a circle the length of the tangent to the circle is 3cm, the radius of a circle will be. 1

Q2. Two circle touch externally at P and AB is a common tangent to the circles. Then find <APB? 1

Q3. In a right ΔABC, right angled at B, BC = 6cm and BC= 8cm. A circle is inscribed in ΔABC. Find the radius of circle? 1

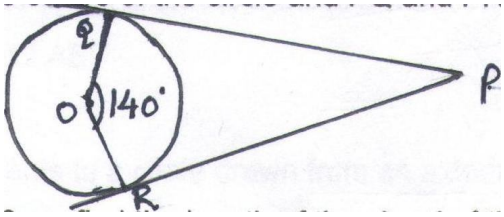
Q4. AB, AC and PQ are tangents as shown in the adjoining figures. If AB= 5cm then find perimeter of ΔAPQ. 1



Q5. Prove that in two concentric circles, the chord of the larger circles, which touches the smaller circle is bisected at the point of contact? 2

Q6. Prove that the lengths of the two tangents drawn from an external point to a circle are equal? 2

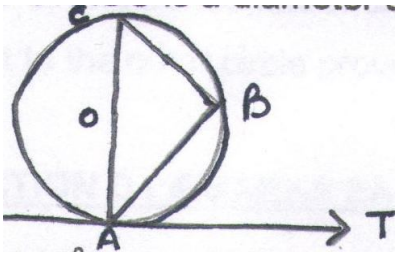
Q7. Find x in the adjoining figure where O is the centre of the circle and PQ and PR are tangents draw from a point to the circle? 2



Q8. The concentric circle are of radii 5cm and 3cm. Find the length of the chord of the larger circle which touches the smaller circle? 2

Q9. Prove that the tangents drawn at the ends of a diameter of a circle are parallel? 2

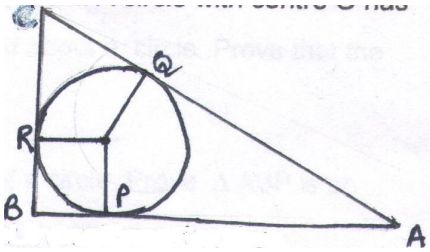
Q10. AB is chord of a circle with cetre O. AOC is a diameter and AT is tangent at A. Prove tht <BAT = <ACB 2



Q11. If two tangents inclined at angle of 60^0 are drawn to a circle of radius 3 cm, than find the length of each tangent? 2

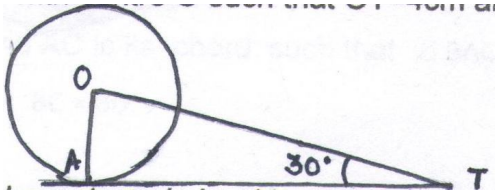
Q12 Prove that the line drawn through the end of a radius and perpendicular to it is a tangent to the circle? 2

Q13 In the figure ABC is a right angled Δ with AB = 6cm, BC = 8cm. A circle with centre O has been inscribed inside the Δ. Find the radius of circle? 3



Q14 If a parallelogram cirumsribes a circle than prove that it must be a rhombus. 3

Q15 If AT is a tangent to the circle with centre O such that OT = 4cm and <OTA = 30^0. Find the length of segment AT 3

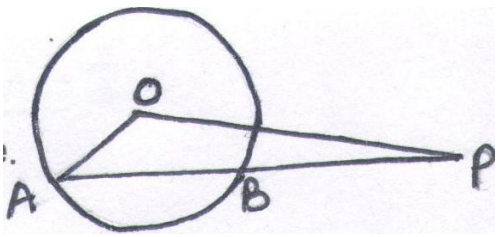


Q16 Two tangets PT and PT' are drawn to a circle with centre O, from an external point P'. Prove that <TPT' = 2<OTT' 3

Q17 From an external point P, two tangents PA and PB are drawn to the circle with centre O. Prove that OP is the perpendicular bisector of AB. 3

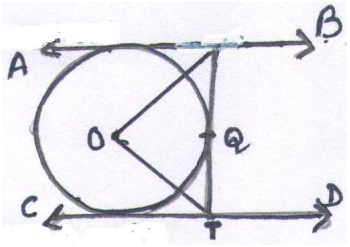
Q18 Prove tht the angle between the two tangents to a circle drawn from an external point is supplementary to the angle subtended by the line segment joining the point of contact at the centre. 3

Q19 In the given figure OP = 13cm AB = 7cm and BP =9cm. Find radius of circle. 3



Q20 If d_1, d_2 ($d_2>d_1$) be the diameters of two concentric circles and C be the length of a chord of a circle which is target to the other circle prove that $d_2^2 = C^2 + d_1^2$ 3

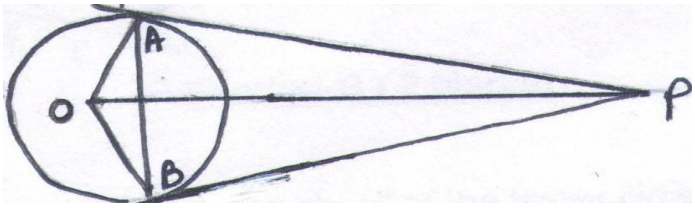
Q21 AB and CD are two parallel targets to a circle with centre O. ST is the tangent segment between two parallel tangents touching the circle show that $<SOT = 90^0$. 4



Q22 AB is a diameter of a circle with centre O. AH and BK are perpendiculars from A and B to the target at a Point P on the circle Prove AH + BK = AB. 4

Q23 ABC is an isoscels Δ in which AB = AC, circumscribed about a circle. Prove that the base is bisected at the point of contact. 4

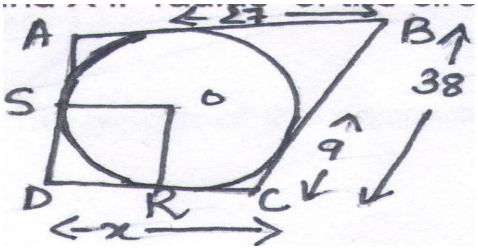
Q24 In the adjoining figure, OP is equal to the diameter of a circle. Prove Δ ABP is an equilateral Δ. 4



Q25 AB is a diameter of a circle and AC is its chord such that $<BAC=30^0$. If tangent at C intersect AB extended at D then BC = BD. 4

Q26 A ΔABC is drawn to circumscibe a circle of radius 4 cm such that the segments BD nd DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively find the sides AB and AC. 4

Q27 Quadrialeral ABCD is circumscribed and AD ⊥ DC find X if radius of the circle is 10cm. 4



Q28 AB and CD are two equal chords of a circle whose centre is 0. When Produced these chords meet at E. Prove that EB = ED. 4

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 11 Constructions

Q1. The Ratio of the sides of the Δ to be constructed with corresponding sides of the given Δ is termed as 1

Q2. How many tangents can be drawn to a circle? 1

1. From a point outside the circle b) from a point in the circle.

Q3. How can you locate the centre of a circle, If it is not given? 1

Q4. If a scale factor is 5/3 is greater 1, then the resulting figure of Δ will be larger or smaller than the given Δ. 1

Q5. Draw a line segment of length 7 cm. find a point P on it which divides it in the ratio 8:5. 4

Q6. Take a point O in the plane of a paper with O as a centre draw a circle of radius 4 cm. Take a point P on this circle and draw tangent at P. 4

Q7. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at angle 60^0. 4

Q8. Draw a line segment AB = 4.8 cm and find point P on AB such that AP = ¼ AB. 4

Q9. Draw two circles of radii 5 cm and 3 cm with their centres 9 cm apart. From the centre of each circle draw tangents to other circles. 4

Q10. Construct ΔABC in which BC = 6.5 cm <B=60 <C=45^0. Construct Δ whose sides are 4/5 of the corresponding sides of Δ ABC. 4

Q11. Construct a ΔABC with base BC = 4.2cm,m < A= 45^0 altitude through A is 2.5 cm. Draw another Δ simiular to this Δ with scale factor1/2. 4

Q12 Draw two concentric circles of radii 6 cm and 4 cm from a point on the outer circle draw a tangent to the inner circle and measure its length. 4

Q13 Construct ΔABC with BC = 6cm < A = 60^0 Median AD through A is 5 cm long construct Δ A'B'C'. Similar to Δ ABC with BC' = 8cm. 4

Q14 Draw a right Δ in which the sides containing the right angle are 5 cm and 4 cm Construct Δ similar to the Δ whose sides are 5/3 times the correspodig sides of the above Δ. 4

Q15 Draw a circle of radius 3 cm. Take two points P and Q on one of its extended diameter each at a distance of 7 cm from its centre. Draw tangents to the circle from these two points. 4

Q16 Draw two concentric circle C_1 and C_2 with common centre O of radii 4 cm and 6 cm respectively. Take a point P in between these circle. Draw tangents to the circle C_1 from the point P. 4

Q17 Draw a right Δ in which sides (other than hypotenuse) are of lengths 8 cm and 6 cm. Then constuct another Δ similar to this Δ whose sides are ¾ times the corresponding sides of the first Δ. 4

Q18 Construct an isoscles Δ ABC with base 3.9 cm and each equal being 3.5 cm. Draw a Δ similar to Δ ABC such that its sides are 3/2 of the corresponding sides of ΔABC. 4

Q19 Draw a circle of 4 cm radius. Draw AB and CD as two perpendicular diameters. Draw targents to the circle ta A,B,C and D what type of figure do you get? 4

Q20 Draw a circle of diameter 6 cm, from a ponit 5 cm away from the centre of the circle draw two tangents to the circle. Measure their lengths and verify that they are euqla in lengths. 4

Q21 Construct ΔPQR such that PQ = 4.7 cm <P = 120^0 PR = 5.1 cm Construct another Δ similar to Δ PQR whose sides are ¾ of the corresponding sides of Δ PQR. 4

Q22 Construct Δ are ABC with BC = 7 cm, <B= 60^0 and AB = 6 cm. Construct another Δ whose sides are ¾ times the corresponding sides of Δ ABC. 4

Q23 Draw a right ΔABC in which AB =6 cm, BC = 8 cm <8= 90^0. Draw a perpendicular from B on AC. Draw a circle passing through the point BC and D construct tangents from A to the circle. 4

Q24 Draw a line segment 5.8 cm. Divide it ito 4 equal parts. 4

Q25 Draw Δ ABC having base 3.5 cm vertex angle 70^0 and the length of the median to the base is 3 cm. 4

Q26 Draw a circle of radius 4 cm. Take a point P outside the cicle without using the centre of the circle. Draw two tangents to the circle from Point P. 4

Q27 Draw a circle with help of bangle. Take a point outside the circle. Construct the pair of tangents from this point to the circle. 4

Q28 Draw a circle of radius 3 cm. Take a point P on it without using the centre of the circle draw a tangnet to circle at Point P ? 4

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER-12 Area Related to Circles

Q1. If the perimeter of a semicircular protractor is 36 cm, then its diameter is : 1

1. 10 cm b) 12 cm c) 14 cm d) 15 cm

Q2. If a wire is bent into the shape of a square, then the area enclosed by the square is $81cm^2$. When the same wire is bent into a semi-circular shape, then the area enclosed by the semi circle will be : 1

1. $22cm^2$ b) $44cm^2$ c) $77cm^2$ d) $154cm^2$

Q3. The minute hand of a clock is 21cm long. The distance moved by the tip of the minute hand in 1 hour is : 1

1. 21πcm b) $42\ \pi cm$ c) $10.5\ \pi$cm d) $7\ \pi$cm

Q4. If the circumference of a circle of radius 'r' and the perimeter of a square of 'a' are equal, then the ratio of area of the circle to that of the square is: 1

1. $4 : \pi$ b) $\pi : 4$ c) $\pi^2 : 16$ d) $\pi^2 : 4$

Q5. The circumference of a circle is 100cm. The side of a square inscribed in the circle is : 1

1. $50\sqrt{2}cm$ b) $\frac{100}{\pi}cm$ c) $\frac{50\sqrt{2}}{\pi}cm$ d) $\frac{100\sqrt{2}}{\pi}cm$

Q6 The length of minute hand of a clock is 14cm. Find the area swept by the minute hand in 15 minutes. 2

Q7 If the perimeter of a semi-circular protractor is 66cm, find the radius of the protractor. 2

Q8 What will be the ratio of perimeters of a square and a circle if their areas are equal? 2

Q9 The length of the minute hand of the clock is 14 cm. Find the area swept by the minute hand from 9:00 to 9:35. 2

Q10 The minute hand of a clock is $\sqrt{21}cm$ long. Find the areas swept by the minute hand on the face of the clock from 7:00 am to 7:05am. 2

Q11 If the area and circumference of a circle are numerically equal, then find the radius of the circle. 2

Q12 A semi-circular sheet of paper of diameter 28 cm is bent into an open conical cup. Find the depth and capacity of the cup. 3

Q13 Find the area of the quadrant of that circle whose circumference is 22 cm (Use π=22/7) 3

Q14 A chord of circle of radius 12cm subtends an angle of 120^0 at the centre. Find the area of major and minor segment of the circle. 3

Q15 The length of a rope by which a cow is tethered is increased from 16m to 23m. How much additional area can the cow graze now? 3

Q16 In an equilateral triangle of side 12cm , a circle is inscribed touching its sides . Find the area of portion of triangle not included in the circle. 3

Q17 Four circular cardboards of radii 7cm are placed on a paper in such a way that each piece touches other two pieces. Find the area of portion enclosed between the pieces. 4

Q18 Find the difference of areas of two segments of a circle formed by a chord of length 5 cm subtending an angle of 90^0 at the centre. 4

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 13 Surface Area and Volume

Q1. The radii of bases of cylinder and a cone are in the ratio 3 :4 and their heights are in the ratio 2:3, then ratio between the volume of cylinder to that of cone is : 1

a) 8:9 b) 9:8 c) 5:7 d) 7:5

Q2. The diameter of a metallic sphere is 6 cm. It is melted and drawn into a wire of diameter 2 cm, then the length of the wire is : : 1

1. 12 cm b) 18cm c) 36cm d) 66 cm

Q3. If a cone is cut into parts by a horizontal plane passing through the mid-points of its axis, the ratio of the volumes of the upper part and the cone is : 1

1. 1:2 b) 1:4 c) 1:6 d) 1:8

Q4. If the radii of circular ends of frustum of a cone are 20 cm and 12 cm and its height is 6 cm, then the slant height of frustum (in cm) is : 1

1. 10 b) 8 c) 12 d) 15

Q5. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is: 1

1. $60\pi cm^2$ b) $68\,\pi cm^2$ c) $120\,\pi\ cm^2$ d) $136\,\pi cm^2$

Q6 A solid cylinder of radius r and height h is placed over other cylinder of the same height and radius. Find the total surface area of the shape so formed. 2

Q7 The total surface area of a right circular cone is $90\,\pi cm^2$. If the radius of base of the cone is 5 cm, find the height of the cone. 2

Q8 How many lead shots, each 0.3 cm in diameter, can be made from a cuboid of dimensions 9 cm x 11 cm x 12 cm. 2

Q9 The volume of a right circular cylinder of height 7 cm is $567\,\pi cm^3$. Find its curved surface area . $\left[Use\ \pi = \frac{22}{7}\right]$ 2

Q10 The radius of the base and the height of a right circular cylinder are in the ratio of 2:3 and its volume is 1617 cu.cm. Find the curved surface area of the cylinder. 2

Q11 A cone of height 24 cm and radius of base 6 cm is made up of modeling clay. A child reshapes it in the form of a sphere. Find the radius of the sphere. 2

Q12 A sphere of radius 6 cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8 cm. If the sphere is submerged completely, then find the increase in level of the water. 3

Q13 A solid sphere of diameter 14 cm is cut into two halves by a plane passing through the centre. Find the combined surface area of the two hemispheres so formed. 3

Q14 The internal and external radii of a hollow spherical shell are 3 cm and 5 cm respectively. If it is melted to form a solid cylinder of height $10\frac{2}{3}$cm. Find the diameter of the cylinder. 3

Q15 How many solid spheres of diameter 6 cm are required to be melted to form a solid metal cylinder of height 45 cm and diameter 4 cm? 3

Q16 A milk container is made of metal sheet in the shape of frustum of cone whose volume is $10459\frac{3}{7}\,cm^3$. The radii of its lower and upper circular ends are 8 cm and 20 cm. Find the cost of metal sheet used in making the container all the rate of Rs 1.40 per square cm. 4

Q17 A bucket is in form of a frustum of a cone of height is 30 cm with radii of its lower and upper ends as 10cm and 20 cm respectively. Find the capacity of the bucket. Also find the cost of milk which can completely fill the container, at the rate of Rs 25 per litre. 4

Q18 A spherical copper shell, of external diameter 18 cm, is melted and recast into a solid cone of base radius 14 cm and height $4\frac{3}{7}\ cm$. Find the inner diameter of the shell. 4

Q19 Find the mass of a 3.5 m long lead pipe, if the external diameter of pipe is 2.4 cm, thickness of the metal is 2 mm and $1cm^3$ of lead weights 11.4kg. 4

Q20 An iron pillar has some part in the form of a right circular cylinder and the remaining in the form of a right 4

circular cone. The radius of the base of each of the cone and the cylinder is 8 cm. The cylindrical part is 240 cm high and conical part is 36 cm high. Find the weight of the pillar if 1 cu cm of iron weights 7.5 grams.

Q21 A container is the form of the frustum of a cone. If its height is 16 cm and the radii of its lower and upper ends are 8 cm and 20 cm respectively. Find the slant height of the container and also the cost of milk that the container can hold, if the cost of milk is Rs 30/ litre. (π=3.14) 4

Q22 A building is in the form of a right circular cylinder surmounted by a hemispherical dome both having the same base radii. The base diameter of the dome is equal to 2/3 of the total height of the building. Find the height of the building, if it contains $67\frac{1}{21}$ m^3 of air. 4

THE ASIAN SCHOOL, DEHRADUN

Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 14 STATISTICS

General Instructions : Question No 1 to 10 are of three marks each.
Question No. 11 and 12 are of four marks each.

Q1. Find the Mean , Median and Mode for the following : 13,15,17,19,14,16,12,10,8,15,16,15,11,9,18.

Q2. Find the Median and the Inter Quartile Range : 3,6,8,13,15,15,5,21,23,17,10,9,1,20,21,18,12.

Q3. Find the Mean (Direct Method), Median and Mode for the following :

Wages	65	66	67	68	69	70	71	72	73
No. of students	1	4	5	7	11	10	6	4	2

Q4. Find the mean of the following using step deviation method.

Class Intervals	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
Frequency	8	12	14	16	17	13	7	3

Q5. Find the mean of the following using short cut method.

Class Intervals	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	5	8	19	15	17	20	10	6

Q6. Find the mean with step deviation method

Class Intervals	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	7	8	11	14	16	10	12	9	7	6

Q7. Find the value of p , if the mean of the following distribution is 18.

Number	13	15	17	19	20+ p	23
Frequency	8	2	3	4	5p	6

Q8. Find the mode of the following data.

Class Intervals	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	8	12	14	10	11	9	7	6

Q9. Find the value of p , if the mean of the following distribution is 10.

Number	5	7	9	11	p	15	20
Frequency	4	4	4	7	3	2	1

Q10. Find the value of p , if the mean of the following distribution is 18.

Class Intervals	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Frequency	3	6	9	13	p	5	4

Q11. Draw an ogive for the following frequency distribution. Use ogive to find the

(i) median (ii) number of students who obtained more than 75% marks.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of Students	5	9	16	22	26	18	11	6	4	3

Q12. Use graph paper for this question.

Weight(in Kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
No. of students	5	17	22	45	51	31	20	9

Find (i) Find the cumulative frequencies (ii) Draw an ogive

(iii) Find the median weight (iv) % of students weighing 55 kg or more.

THE ASIAN SCHOOL, DEHRADUN
Test Paper Session 2017-18
CLASS 10 SUBJECT Mathematics CHAPTER- 15 Probability

General Instructions : Question No 1 to 10 are of three marks each.
Question No. 11 and 12 are of four marks each.

Q1. In a throw of pair of dice, what is the probability of getting a doublet?
a) 1/3 b) 1/6 c) 5/12 d) 2/3

Q2. The probability that a non leap year selected at random will have 53 Tuesday is :
a) 1/7 b) 2/7 c) 3/7 d) 4/7

Q3. The probability of drawing a green coloured ball from a bag containing 6 red and 5 black balls is :
a) 0 b) 1 c) 5/11 d) 6/11

Q4.Two dice are thrown simultaneously. Probability of getting a prime number on both dice is :
a) 5/18 b) 2/9 c) 1/3 d) ¼

Q5. If a letter of English alphabet is chosen at random, then the probability that the letter is a consonant is :
a) 5/26 b) 21/26 c) 10/13 d) 11/13

Q6. A card is drawn at random from a well shuffled pack of 52 playing cards. Find the probability that card drawn is :
a) Spade or an ace b) neither king nor queen

Q7. Two dice are thrown at the same time. Find the probability of :
a) Same number on both the dice
b) Different number on both the dice

Q8. A card is drawn at random from a well shuffled pack of 52 cards. Find the probability that the card drawn is neither a red card nor a queen.

Q9. From a deck of playing cards all aces and clubs are removed, a card is drawn at random from the remaining cards. Find the probability that it is :
a) A black face card b) A red card

Q10. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is 2/3. Find the number of blue marbles.

Q11. A bag contains 14 balls of which x are white. If 6 more white balls are added to the bag, the probability of drawing a white ball is 1/2. Find the value of x.

Q12. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is four times that of a red ball, find the number of blue balls in the bag.

Q13. A bag contains 18 balls out of which x balls are red.
a) If one ball is drawn at random the bag, what is probability that it is red ball.
b) If 2 more red balls are put in the bag, the probability of drawing a red ball will be 9/8 times that of probability of red ball coming in part (i). Find x.

Q14. From a bag containing 5 red, 6 black and 7 yellow balls, a ball is drawn at random. Find the probability that it is:
a) Not yellow ball b) Neither black nor red c) Either black or yellow

Q15. Three unbiased coins are tossed. What is the probability of getting :
a) Two heads b) at least two heads c) at most two heads

Q16. All the three face cards of spades are removed from a well-shuffled pack of 52 cards. A card is then drawn at random from the remaining pack. Find the probability of getting :
a) A black face card b) a queen c) a black card

Q17. King, queen and jack of hearts are removed from a pack of 52 playing cards and then the pack is well shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of :
a) Hearts b) A queen c) Not a king

Q18. A bag contains 19 cards, bearing numbers 1,2,3 ……, 19. A cards is drawn at random from the bag. Find the probability that number on the drawn card is :
a) Prime b) Divisible by 3

Q19. A box contains 5 red, 8 white and 4 green balls. One ball is taken out of the box at random. What is the probability that the ball is (i) red (ii) white (iii) not green.

Q20 A card is drawn from a deck of 52 cards. Find the probability that the card drawn is
i) an ace (ii) a red card (iii) neither a king nor a queen. (iv)a king of red colour (v) neither a spade nor a jack

Q21. A card is drawn from a pack of 52 cards. Find the probability that it is

(i) a spade card, (ii) a face card, (iii) 10 of heart. (iv) a card of club or an ace

Q22. A bag contains 100 identical tokens on which 1 to 100 are marked. One token is drawn at random,find the probability that the number on the token is (i)a multiple of 5,(ii) an even number(iii) a perfect square.

Q23.A box contains 5 red, 8 white and 4 green balls. One ball is taken out of the box at random. What is the probability that the ball is (i) red (ii) white (iii) not green.