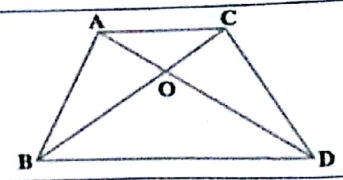


KENDRIYA VIDYALAYA SANGATHAN AHMEDABAD REGION**Class X - Mathematics****II Pre-Board Examination 2018-19****Time: 3 Hours****Max. Marks: 80****General Instructions:**

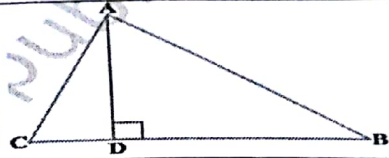
1. All the questions are compulsory. 2. The questions paper consists of 30 questions divided into 4 sections A, B, C and D. 3. Section A comprises of 6 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 10 questions of 3 marks each. Section D comprises of 8 questions of 4 marks each. 4. There is no overall choice. However, an internal choice has been provided in two questions of 1 mark each, two questions of 2 marks each, four questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternatives in all such questions. 5. Use of calculators is not permitted.

Section A		
1.	If P(2,p) is the mid point of the line segment joining the points A(6,-5) and B(-2,11), find the value of p.	1
2.	If the quadratic equation $x^2 - 4x + k = 0$ has equal roots, then find the value(s) of k.	1
OR		
	If 8 is a root of the equation $x^2 - 10x + k = 0$, then find the value of k.	
3.	Find the value of $\tan 48^\circ \times \tan 23^\circ \times \tan 42^\circ \times \tan 67^\circ$	1
OR		
	If $\tan 2A = \cot (A - 18^\circ)$, where 2A is acute angle. Find the value of A.	
4.	For an AP, if $a_{18} - a_{14} = 32$, then find the common difference d.	1
5.	In ΔABC , $DE \parallel BC$. If $AD = x + 2$, $DB = 4$, $AE = x - 1$ and $EC = 3$, then find x.	1
6.	The decimal expansion of rational number $\frac{43}{2^4 \times 5^3}$, will terminate after how many places of decimals.	1
Section B		
7.	Find the LCM and HCF of 120 and 144 by using Fundamental theorem of Arithmetic.	2
OR		
	Show that $2 - \sqrt{3}$ is irrational number, given that $\sqrt{3}$ is irrational number.	

8.	Is 68 a term of the AP : 7, 10, 13, ... ?	2
OR		
9.	Find the 9 th term from the last term of the AP: 5, 9, 13,, 185.	2
10.	Find the coordinates of the point P which divides the join of (-1, 7) and (4, -3) in the ratio 2 : 3.	2
10.	A card is drawn at random from a well shuffled pack of 52 playing cards. Find the probability that the drawn card is (i) neither a jack nor an ace. (ii) a king or jack	2
11.	Two different dice is thrown at the same time .Find the probability that (i) the sum of the two numbers appearing on the top of the dice is 7. (ii) 5 will not come on either of them.	2
12.	Find whether the lines representing the following pairs of linear equations intersect at a point , or are parallel or coincident : $2x - 3y + 6 = 0$, $4x - 5y + 2 = 0$.	2
Section C		
13.	By using Euclid's algorithm , find the HCF of 65 and 117 and find the pair of integral values of m and n such that $HCF = 65m + 117n$	3
14.	Find the zeroes of $\sqrt{3}x^2 + 10x + 7\sqrt{3}$ and what are the sum and product of its zeroes ?	3
15.	8 men and 12 boys can finish a piece of 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 that by one boy.	3
16.	Prove that the diagonals of rectangle ABCD, with vertices A(2, -1) , B(5, -1), C(5, 6) and D(2, 6) are equal and bisect each other.	3
OR		
	Find the value of K ,for which the points (8,1) , (K, -4), (2, -5) are collinear.	
17.	Prove that: $\frac{\cot A - \cos A}{\cot A + \cos A} = \frac{\operatorname{cosec} A - 1}{\operatorname{cosec} A + 1}$	3
OR		
	$\frac{\sin \theta - \tan \theta}{\sin \theta \times \tan \theta} = \frac{\cos \theta - 1}{\sin \theta}$	
18.	Two concentric circles of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.	3

19.	In the fig. ABC and DBC are two triangles on the same base BC. If AD intersects BC at O. Show that $\frac{ar(ABC)}{ar(DBC)} = \frac{AO}{DO}$		3
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OR

	The perpendicular from A on side BC of a ΔABC intersects BC at D such that $DB = 3 CD$. (see fig) Prove that $2AB^2 = 2AC^2 + BC^2$		
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20.	Area of a sector of a circle of radius 14 cm is 154 cm^2 . Find the length of the corresponding arc of the sector. [use $\pi = \frac{22}{7}$]	3
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21.	Water is flowing at the rate of 10 km/hour through a pipe of radius 7 cm into a cuboidal tank of dimensions 22 m X 20 m X 14 m. How long will it take to fill the empty tank. [use $\pi = \frac{22}{7}$]	3
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OR

	A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of the cylinder.	
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22.	Find the value of ' f ' from the following data if its mode is 65: Where frequency 6, 8, f and 12 are in ascending order	3														
	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Class</td> <td>0 - 20</td> <td>20 - 40</td> <td>40 - 60</td> <td>60 - 80</td> <td>80 - 100</td> <td>100 - 110</td> </tr> <tr> <td>Frequency</td> <td>6</td> <td>8</td> <td>f</td> <td>12</td> <td>6</td> <td>5</td> </tr> </table>	Class	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 110	Frequency	6	8	f	12	6	5	
Class	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 110										
Frequency	6	8	f	12	6	5										

Section D

23.	A motor boat whose speed is 24 km/ h in still water takes i hour more to go 32 km upstream than to return down stream to the same spot. Find the speed of the stream.	4
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OR

	Solve for x : $\frac{1}{2a+b+2x} = \frac{1}{2a} + \frac{1}{b} + \frac{1}{2x}$	
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24.	How many terms of AP : 9, 17, 25, must be taken to give sum 636?	4
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25.	Prove that the ratio of the areas of two similar triangles is equal to the ratio of squares of their corresponding sides.	4
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26.	Construct a triangle ABC with $BC = 7 \text{ cm}$, $\angle B = 60^\circ$ and $AB = 6 \text{ cm}$. Construct another triangle whose sides are $\frac{3}{4}$ times the corresponding sides of ΔABC .	4
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27.	A 1.5 m tall boy is standing at some distance from a 30 m tall building . The angle of elevation from his eyes to the top of the building increases from 30° to 60° as he walks towards the building . Find the distance he walked towards the building.	4
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OR

	From the top of a 7 m high building , the angle of the top of a cable tower is 60° and the angle of depression of its foot is 45° .	
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	Determine the height of the tower.						
28.	Find the median by drawing less than type ogive and more than type ogive.						4
	Class	50 - 60	60 - 70	70 - 80	80 - 90	90 - 100	
	frequency	3	5	9	12	6	
OR							
	If the mean of the following frequency distribution is 65.6, find the missing frequency (f_1, f_2): where $\sum fi = 50$.						
	class	10 - 30	30 - 50	50 - 70	70 - 90	90-110	110-130
	frequency	5	8	f_1	20	f_2	2
29.	A metallic bucket, open at the top, of height 24 cm is in the form of frustum of a cone, the radii of whose lower and upper circular ends are 7 cm and 14 cm respectively. Find: (i) the volume of the water which can completely fill the bucket. (ii) the area of metal sheet used to make the bucket. [use $\pi = \frac{22}{7}$]						4
30.	If $\operatorname{cosec} A + \cot A = m$, show that: $(m^2 - 1) \div (m^2 + 1) = \cos A$						4