



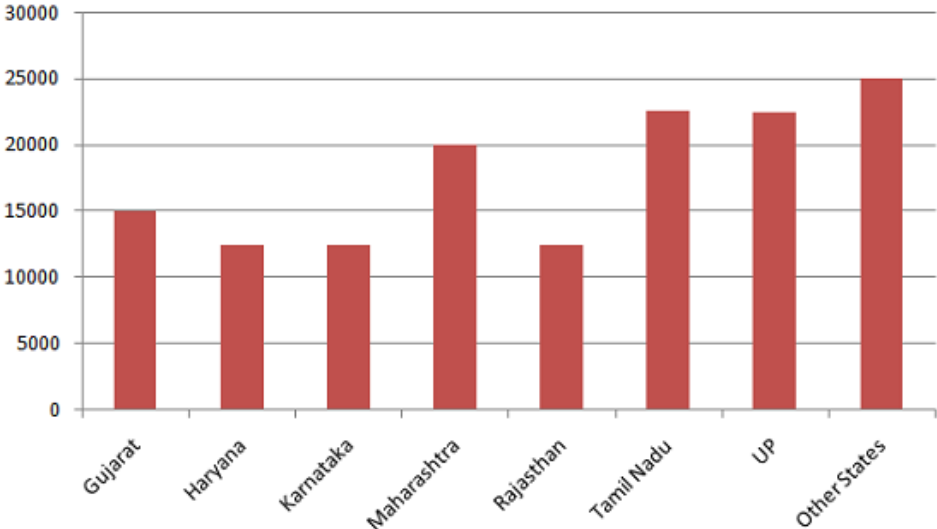
## End Semester Examination – Nov/Dec – 2016

Code : **15MA3017**  
Sub. Name : **Mathematics for Competitive examinations**

Semester : **2016-17 ODD**  
Duration : **3hrs**  
Max. marks : **100**

### ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Find the greatest number of six digits which, on being divided by 6, 7, 8, 9 and 10 leaves 4, 5, 6, 7 and 8 as remained respectively.	CO1	8
	b.	In cash bag there are currency notes in denominations of Rs. 20, Rs. 10 and Rs. 5 in the ratio 3 : 4: 5. If the total amount in the bag is Rs. 1000, then find the number of 5- rupee notes.	CO2	8
	c.	In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?	CO1	4
<b>(OR)</b>				
2.	a.	I am three times as old as my Son. Five years later, I shall be two and half times as old as my son. How old am I and how old is my son?	CO1	7
	b.	The average weight of 9 mangoes increases by 20 gm if one of the them weighing 120 gm is replaced by another. Find the weight of the new mango.	CO1	7
	c.	Find the equivalent fraction of 0.393939..... and 2.0414141.....	CO2	4
3.	a.	Find the value of $16^{0.16} * 2^{0.36}$ .	CO2	4
	b.	A man lent Rs.500 at a certain rate of interest and Rs. 700 at a rate 1% higher than the first. From the both sums he received Rs.165 as interest in 3 years. Find the rate of interest.	CO1	8
	c.	A dry-fruit seller mixes three varieties of walnuts costing Rs. 50, Rs. 20 and Rs. 30 per kg in the ratio 2 : 4: 3 in terms of weight and sells the mixtures at Rs. 33 per kg. what percentage of profit does he make?	CO1	8
<b>(OR)</b>				
4.	a.	A can do a piece of work in 80 days. He works at it for 10 days and then B alone finishes the remaining work in 42 days. In how many day together could complete the work?	CO1	8
	b.	The compound interest on a certain sum for 2 years is Rs. 40.80 and simple interest is Rs. 40. Find the rate of interest per annum and the Sum.	CO1	8
	c.	Find the square root of 323761	CO2	4
5.	a.	A jogger running at 9 kmph alongside a railway track in 240 metres ahead of the engine of a 120 metres long train running at 45 kmph in the same direction. In how much time will the train pass the jogger?	CO2	8
	b.	The percentage profit earned by selling an articles for Rs. 1920 is equal to the percentage loss incurred by selling the same article for Rs. 1280. At what price should the article be sold to make 25% profit?	CO1	8
	c.	A clock is started at noon. By 10 minutes past 5, find the angle of the hour hand has turned through.	CO4	4
<b>(OR)</b>				
6.	a.	A motor boat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in total of 4 hr 30 min. Find the speed of the stream.	CO1	8

	b.	A tank is filled in 10 hours by three pipes A, B and C. Pipe C is twice as fast as B and B is twice as fast as A. How much time will pipe A alone take to fill the tank?	CO1	8
	c.	Find the missing number - 7, 26, 63, 124, 215, 342, (....)	CO2	4
7.	a.	From a point A due north of the tower, the elevation of the top of the tower is $60^\circ$ . From a point B due south, the elevation is $45^\circ$ . If $AB = 100$ m, find the height of the tower.	CO1	8
	b.	What was the day of the week on 17th Aug 1998?	CO4	8
	c.	What is the unit digit in the number represented by $3^{65} \times 6^{59} \times 7^{71}$	CO2	4
<b>(OR)</b>				
8.	a.	A man complete a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. Find the total journey in km.	CO1	8
	b.	The denomination of a fraction is 1 less than twice the numerator. If the numerator and denominator are both increased by 1, the fraction becomes $\frac{3}{5}$ . Find the fraction.	CO2	4
	c.	A sum of Rs.2200 has been divided among A, B and C such that A gets $\frac{1}{4}$ of what B gets and B gets $\frac{1}{5}$ of what C gets. What is B's share?	CO4	8
<b><u>Compulsory:</u></b>				
9.	a.	Study the following graph carefully and answer the questions given below   <p>I. Which state(s) contributes less than 10 percent in the total rose production?</p> <p>II. By what percentage rose production of the other states is than that of Maharashtra?</p> <p>III. What is the approximate average production of roses(in thousands) across all the states?</p> <p>IV. How much % is the production of Haryana is lower than the production of UP?</p> <p>V. Which state has the second lowest production?</p>	CO3	10
	b.	Which of the following numbers is exactly divisible by 21? 539655, 566454, 895251, 776682	CO2	5
	c.	5 kg of rice at Rs. 6 per kg is mixed with 4 kg of rice to get a mixture of costing Rs. 7 per kg. Find the price of the costlier rice?	CO1	5