Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **15MA3017** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MATHEMATICS FOR COMPETITIVE EXAMINATION** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | A, B and C enter into partnership. A advances one-fourth of the capital for one-fourth of the time. B contributes one-fifth of the capital for half of the time. C contributes the remaining capital for the whole time. How should they divide a profit of Rs. 5700? | CO1 | 8 |
| b. | A speaks truth in 75% cases and B in 80% of cases. In what percentage of the cases are they likely to contradict each other, narrating the same incident? | CO1 | 8 |
| c. | In a group of 6 boys and 4 girls, 4 children are to be selected. In how many different ways can they be selected such that at least one boy should be there? | CO4 | 4 |
| (OR) | | | | |
| 2. | a. | One year ago, Mrs. Pamila was four times as old as her daughter Swati. Six years hence, Mrs. Pamila’s age will exceed her daughter’s age by 9 years. What is the ratio of the present ages of Pamila and her daughter? | CO4 | 8 |
| b. | When the average age of 6 children was 12 years, a child of 6 years old died. What was the average age of the surviving children 3 years after the death of the above child? | CO1 | 8 |
| c. | Find the unit’s digit in the product (367x639x53) | CO1 | 4 |
| 3. | a. | In an organisation, 40% of the employees are matriculate, 50% of the remaining are graduates and the remaining 180 are post-graduates. How many employees are graduates? | CO2 | 8 |
|  | b. | 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 remainders respectively. | CO2 | 8 |
|  | c. | Pipe 1 and 2 can fill a tank alone in 6 hours and 9 hours respectively. Pipe 3 can empty the full tank in 18 hours. If all the three pipes are opened simultaneously, then how much time is required to fill the tank completely? | CO4 | 4 |
| (OR) | | | | |
| 4. | a. | Ratio of the earnings of A and B is 4 : 7 respectively. If the earnings A increase by 50 % and the earnings of B decrease by 25 %, the new ratio of their earnings becomes 8 : 7 respectively. What is A’s earnings? | CO4 | 8 |
|  | b. | If 5 men and 10 boys can complete a work in 40 days while 8 men and 5 boys can complete the same work in 40 days then in how many days, 4 men and 30 boys will complete the same work? | CO1 | 8 |
|  | c. | What is the value of i. ii. | CO2 | 4 |
| 5. | a. | A manufacturer sells a pair of glasses to a wholesale dealer at a profit of 18 %. The wholesaler sells the same to a retailer at a profit of 20%. The retailer in turn sells them to a customer for Rs. 30.09, thereby earning a profit of 25 %. What is the cost price for the manufacturer? | CO2 | 8 |
|  | b. | Simplify | CO2 | 8 |
|  | c. | What is the smallest number to be subtracted from 549162 in order to make it a perfect square? | CO2 | 4 |
| (OR) | | | | |
| 6. | a. | Anil and Babu can do a job in 8 days. Babu and Charan can do the same job in 12 days. Anil, Babu and Charan can do the job in 6 days. In how many days Anil and Charan can complete the job? | CO1 | 8 |
|  | b. | A lends Rs. 1500 to B and a certain sum to C at the same time at 8% per annum simple interest. If after 4 years, A altogether receives Rs. 1400 as interest from B and C, then find the sum lent to C? | CO1 | 8 |
|  | c. | Find the value of . | CO1 | 4 |
| 7. | a. | A train passes a platform in 36 seconds. The same train passes a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, find the length of the platform? | CO2 | 8 |
|  | b. | Find the day of week on first independent day of India. | CO2 | 8 |
|  | c. | The length of a plot is 4 times its breadth. A playground measuring 1200 m2 occupies one third of the total area of the plot. What is the length of the plot? | CO2 | 4 |
| (OR) | | | | |
| 8. | a. | A motorboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. Find the speed of the stream (in km/hr)? | CO2 | 8 |
|  | b. | On the same side of a tower, two objects are located. Observed from the top of the tower, their angles of depression are 45° and 60°. If the height of the tower is 600 m, find the distance between the objects? | CO1 | 8 |
|  | c. | Find the angle between the minute hand and hour hand of a clock when the time is 8.30? | CO4 | 4 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Study the following bar graph carefully and answer the questions given below. Imports and exports of a country from 2000 - 2001 to 2004 -2005  <http://p3.placement.freshersworld.com/power-preparation/sites/default/files/Bar%20Graph%20Image1.JPG>   1. In which year the gap between the import and export was maximum? 2. In which year the gap between the imports and exports was minimum? 3. The exports in 2001 - 2002 was approximately how many times that of the year 2003- 2004? 4. Give the ratio between the number of years in which export is greater than imports and import is greater than exports. 5. Give the difference between the average of imports and exports. | CO3 | 10 |
|  | b. | Which number always divides the difference of the squares of two consecutive even integers? | CO2 | 5 |
|  | c. | How many kg of rice at Rs.6.60 per kg be mixed with 56 kg of rice at Rs.9.60 per kg to get a mixture worth Rs.8.20 per kg? | CO4 | 5 |

ALL THE BEST