

Reg. No.:



Name:

University of Kerala

U9355

Second Semester FYUGP Degree Examination, April 2025

Multi-Disciplinary course

MATHEMATICS

UK2MDCMAT100 - Numerical Ability- II

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark
Each.Answer all questions

Qn No.	Question	CL	CO
1	Define geometrico-arithmetic series.	RE	1
2	If the lines $a_1x + b_1y = c_1$ and $a_2x + b_2y = c_2$ are identical then the relation between the coefficients is ...	RE	1
3	Is 2 is a root of the quadratic equation $2x^2 + x + 1 = 0$. State True or False.	UN	5
4	Insert the missing number 1, 1, 4, 8, 9, 27, 16, ...	UN	1
5	Write the expression for the amount A due after t years, when a principal P is given on compound interest at the rate $R\%$ per annum.	UN	2
6	In how many ways can eight people be seated around a round table?	UN	5

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Construct a quadratic equation whose roots have the sum 6 and product -16 .	UN	1
8	Rajesh invested Rs.16000 for two years at compound interest and received an amount of Rs. 17640 on maturity. What is the rate of interest?	UN	1
9	In how many ways can the letters of the word BALLOON be arranged so that two L's do not come together?	AP	3
10	Find the next term of the series 1, 9, 33, 105, ...?	AP	2

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Find the sum of the series $1^2 + (1^2 + 2^2) + (1^2 + 2^2 + 3^2) + \dots$ to n terms. OR B) If $C(2n, r) = C(2n, r + 2)$ then find the value of r.	AP	2, 2
12	A) a) Write the next term of the following series i) 1, 2, 3, 6, 4, 5, 6, 60, 5, 6, 7, ... ii) 1, 1, 2, 3, 5, 8, 13, ... b) Pick the wrong term in the series 455, 445, 465, 435, 485, 415, 475. c) Fill in the missing number in the series 3, 15, 35, ..., 99, 143. OR B) (a). For a set of 5 true-or-false questions, no student has written all the correct answers, and no 2 students have given the same sequence of answers. What is the maximum number of students in the class, for this to be possible? (b). In how many ways can the letters of the word 'UNIVERSAL' be arranged? In how many of these will have the letters E, R, S always occur together?	AN	2, 3
13	A) (i) Solve: $-6x + 5y = 2$, $-5x + 6y = 9$. (ii) Solve $2x + 3y = 7$, $3x - y = 5$. OR B) A sum of ₹1586 is divided among three such parts that amount obtained on these three parts of money after 2, 3 and 4 years, respectively, at the rate of 5% per annum remains equal. Find out such three parts of the sum.	EV	1, 2
14	A) A rectangular park is to be designed with perimeter $80m$ and area $400m^2$. Find its length and breadth. OR B) The sum of the ages of two friends is 20 years. Four years ago, the product of their ages in years was 48. Determine their present ages.	CR	3, 3

Qn No.	Question	CL	CO