TAMIL NADU OPEN UNIVERSITY

Chennai-15.

B.Sc Maths – Third Year

SPOT ASSIGNMENT

COURSE	COURSE CODE	ADMISSION YEAR
Real and Complex Analysis	**BMS- 31**	**CY - 2017**

Time : 1 Hour **Total Marks: 25**

Answer all questions.

1. State and prove Baireôs Category theorem. 8 Marks

2. Prove that $f \in \Re$ on [a, b] if and only if for any $\varepsilon > 0$ there exists a partition P such that $U(P, f) - L(P, f) < \varepsilon$. 9 Marks

3. State and prove Cauchyôs integral theorem for rectangle. 8 Marks

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COURSE	COURSE CODE	ADMISSION YEAR
Linear Algebra and Boolean Algebra	BMS- 32	CY - 2017

Time : 1 Hour **Total Marks: 25**

Answer all questions.

1. Prove that any two bases of a finite dimensional vector space V have the same number of elements, proving a necessary result. 9 Marks

2. Explain Gram-Schmidt orthogonalisation process. 8 Marks

3. Prove that the set of all normal subgroups of a group is a modular lattice. 8 Marks

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COURSE	COURSE CODE	ADMISSION YEAR
Optimization Techniques	**BMS - 33N**	**CY - 2017**

Time : 1 Hour **Total Marks: 25**

Answer all questions.

1. Explain Hungarian Method to solve an assignment problem. 9 Marks

2. Solve the following 2×4 game graphically: 9 Marks

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	2	1	0	ï 2
	A_2	1	0	3	2

3. A contractor has to supply 10,000 bearings per day to an automobile manufacturer. He finds that, when he starts a production run, he can produce 25,000 bearings per day. The cost of holding a bearing in stock for one year is 20 paise and the set up cost of a production run is Rs. 180. How frequently should production run be made? 7 Marks

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COURSE	COURSE CODE	ADMISSION YEAR
Programming in C and C++	**BMS - 34**	**CY - 2017**

Time : 1 Hour **Total Marks: 25**

Answer all questions.

1 Write a program to read a string and to count the number of zeroôs, number of 1ôs, etc, white spaces and other characters. 8 Marks

2 Write a program to find the roots of a quadratic equation using a function and use it in the main program to manipulate the roots. 9 Marks

3 Write a note on Constructors and Destructors. 8 Marks

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COURSE	COURSE CODE	ADMISSION YEAR
Graph Theory	BMS - 35	CY - 2017

Time : 1 Hour **Total Marks: 25**

Answer all questions.

1 Prove that a graph is bipartite if and only if it contains no odd cycle. 8 Marks

2 State a necessary and sufficient conditions for connected graph to be eulerian. 9 Marks

3 State and prove five colour theorem. 8 Marks