MSC MATHEMATICS ASSIGNMENT PAPERS

Part –II (FINAL)

Paper –I, FINITE MATHEMATICS AND GALOIS THEORY

Max. Marks:20

1. Answer the following all questions. 8X2½=20

1. Find the coefficient of x^{10} in $\frac{1}{(1-x)^3}$.
2. How many committies of 5 or more can be choosen from 9 people.
3. Show that every simple graph on n vertices is isomorphic to a subgraph of k_n.
4. Define a tree and a binary tree. Draw all distinct binary trees having three vertices.
5. State and prove Gauss Lemma.
6. Find the minimal polynomial over Q of $\sqrt{2}+5$.
7. Prove that the Galois group of $x^2 - 2 \in Q[x]$ is the octic group.
8. If $a > 0$ is constructible then prove that $\sqrt{a}$ is constructible.

MSC MATHEMATICS ASSIGNMENT PAPERS

Part –II (FINAL)

Paper - II, TOPOLOGY AND FUNCTIONAL ANALYSIS

Max. Marks:20

1. Answer the following all questions. 8X2½=20

1. State and prove Lindelof's theorem.
2. Prove that any continuous image of a compact space is compact.
3. Prove that a one-to-one continuous mapping of a compact space onto a house draft space is a homomorphism.
4. Prove that the components of a totally disconnected space one its points.
5. State and prove closed graph theorem.
6. Prove that in a normed linear space the addition and scalar multiplication are jointly continuous.
7. Prove that the inner product in a Hilbert space is jointly continuous.
8. If m is a proper closed linear subspace of a Hilbert space H, then prove that there exists a non zero vector z_0 in H such that $z_0 \perp m$.

MSC MATHEMATICS ASSIGNMENT PAPERS

Part –II (FINAL)

Paper –III, OPERATIONS RESEARCH

Max. Marks:20

1. Answer the following all questions. **8X2½=20**

1. State the general linear programming problem in (a) standard form (b) canonical form.
2. Explain the graphical method of solving a L.P.P.
3. Give a brief outline of the procedure for solving a transportations problem.
4. Explain sequencing problem with two applications.
5. Explain a dynamic programming problem.
6. Explain non linear programming problem.
7. What is queuing theory? What are the applications of queuing theory?
8. Explain the various types of inventory models.