K.L.E Society's
S. Nijalingappa College
II BLOCK RAJAJINAGAR, BENGALURU -10

PG Department of Mathematics
QUESTION BANK

TOPOLOGY-II

1. a)Define Lindloff Space. Prove that every Second countable axiom space is a Lindloff space.
   b) Prove that every separable metric space is second axiom space.

2. a) Define T_0 space. Prove that T_0 space the closure district points are district and conversely.
   b) Define limit point compactness. If every countable open cover of X has a finite sub cover then X is countably compact.

3. a) Define Sequential Compact. Prove that a countably metric space (X, d) is sequential compact.
   b) Define Projection Mapping. Show that Projection maps are continuous and open further the product topology is smallest topology with respect to which projections are continuous

4. a)The product XxY of two topological space X and Y isHoustroff or T_2iff X and Y are T_{2-}
   b) Every metric space is a T_2 space.

5. a) Define HousdroffSpace. And hence prove the hereditary property for it.
   b) Prove that Metric space is T_3 space.

6. State and Prove Urysohn's Lemma.

7. a) Prove that every regular second countable T_1 space is Metrizable.
   b) A compact Housdroff space is normal.

8. a) A regular Lindeloff space is normal.
   b) State and prove Tietz extension Theorem.