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My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks

2. (a) Let X and Y be topological space. Let $f: X \to Y$. Then show that the following are equivalent :
   (i) f is continuous
   (ii) For every subset A of X, one has $f(\overline{A}) \subseteq \overline{f(A)}$
   (iii) For every closed set B in Y, the set $f^{-1}(B)$ is closed in X
   (b) State and prove the Pasting Lemma.
3. (a) Show that the image of a connected space under a continuous map is connected.
   (b) Show that every compact subspace of a Hausdorff space is closed.
   (c) State and prove the intermediate value theorem.
4. (a) Let X be a metrizable space. Then show that the following are equivalent.
   (i) X is compact
   (ii) X is limit point compact
   (iii) X is sequentially compact.
   (b) If X has a countable basis. Then prove that
   (i) Every open covering of X contains a countable subcollection covering X.
   (ii) There exists a countable subset of X which is dense in X.

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5. State and prove Urysohn metrization theorem.
6. (a) Let X be a topological space. Then prove that X is compact if and only if for every collection C of closed sets in X having the finite intersection property, the intersection $\bigcap_{A \in C} C$ of all the elements of C is non-empty.
   (b) X be a (nonempty) compact Hausdorff space. Then prove that every point of X is a limit point of X, then X is uncountable.
7. (a) Prove that the interval $(0, \infty)$ is measurable.
   (b) Prove that every Borel set is measurable.
8. (a) State and prove Fatou's Lemma.
   (b) Let (X, Σ) be a measurable space $<\mu_n>$ a sequence of measures that converges setwise to a measure μ, and (f_n) a sequence of nonnegative measurable functions that converge pointwise to the function f. Then prove that $\int f d\mu \leq \lim \int f_n d\mu_n$
9. State and prove Radon-Nikodym theorem.

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