EXTRA QUESTIONS FOR TYBSC SEM V ATKT (PAPER III)

1	Every finite metric space is			
	(a)	not compact	(b)	*compact*
	(c)	bounded	(d)	closed
2	R with respect to the usual metric is			
	(a)	compact	(b)	not compact
	(c)	closed	(d)	bounded
3	Let X= R, d is the usual metric. Let A = $\{ 1/n : n \in N\} \cup \{0\}$. Then			
	(a)	A is not compact subset of R	(b)	A is compact subset of R
	(c)	A is compact and closed subset of R	(d)	A is compact and bounded subset of R
4	Let (X, d) be ametric space. Let A, B be subsets of X be a compact subsets of X. Then			
	(a)	only $A \cap B$ is compact	(b)	$A \cup B$ and $A \cap B$ both are compact
	(c)	only $A \cup B$ is compact	(d)	A * B is compact
5	Any compact subset of a metric space is			
	(a)	closed	(b)	closed and bounded
	(c)	bounded	(d)	neither closed nor bounded
6	A metric space (X,d) is said to have Bolzano-Weierstrass property (BWP) if			
	(a)	every finite subset of X has a limit point.	(b)	every infinite subset of X has a limit point.
	(c)	every bounded subset of X has a limit point.	(d)	every infinite and bounded subset of X has a limit point.
7	A metric space (X,d) is said to be sequentially compact if every sequence in X has a			
	(a)	convergent sequence	(b)	convergent subsequence
	(c)	divergent subsequence	(d)	divergent sequence
8	Every sequentially compact metric space is			
	(a)	not compact	(b)	compact
	(c)	closed	(d)	complete
9	Let A and B be two subsets of a metric space X such that A is closed and B is compact, then			
	(a)	A + B is compact	(b)	$A \cap B$ is compact
	(c)	A * B is compact	(d)	A * B and A + B both are compact
10	Heine- Borel theorem states that			

	(a)	every open interval in R is compact	(b)	every closed and bounded interval in R is compact
	(c)	every open and bounded interval in R is compact	(d)	every closed and unbounded interval in R is compact
11	Let (X,d) be a metric space and A be a compact subset of X and B be closed subset of X such that $A \cap B = \phi$, then			
	(a)	d(A,B) < 0	(b)	d(A,B) > 0
	(c)	d(A,B) = 0	(d)	d(A,B) not equal to 0