Sample Paper UGAT Subject (Mathematics)

Section I, Subject

Tick the correct answer.

1. The order of -1 in the group of non-zero rational numbers (Q*, .) is

   a) 1 b) 2 c) p/q d) infinity

2. A group of order 7 is

a) Cyclic b) abelian c) maybe non-abelian d) both a and b

3. If U, V and W are open sets in a topological space X, which of the following sets is not open in the product topology of Xx X

a) U x V b) U x (X∩V∩W) c) (X-U) x V d) U x (V∩W)

4. The argument of complex number $\sqrt{-1}$ is

a) 0 b) π c) $\frac{\pi}{2}$ d) $-\pi$

5. The series $\sum_{k=1}^{\infty} \frac{\sin k}{k^2+2}$ is _____.

   a) convergent b) absolutely divergent

   c) conditionally convergent d) The convergence can be decided.