

Course Code: 2MSCM1
Course: Advanced Abstract Algebra-II
Credit: 4
Last Submission Date: October 31, (for January session)
April 30 (for July Session)

Max. Marks:-70
Min. Marks:-25

Note:-attempt all questions.

- Que.1 If f be a homomorphism of R - module M into a R - module N with $\ker(f) = A$ then N is isomorphic to M/A i.e. $N \cong M/A$.
- Que.2 Arbitrary intersection of sub module is a sub module.
- Que.3 If R be Euclidean ring then any finitely generated R - module M is the direct sum of a finite Number of cyclic modules.
- Que.4 An irreducible R - module is cyclic.
- Que.5 If M is a simple R -module and N is any R -module then
- (1) Every non – zero homomorphism $f: M \rightarrow N$ is injective.
 - (2) Every non – zero homomorphism $f: M \rightarrow N$ is surjective.
 - (3) $\text{End}_R(M)$ is a division ring , where $\text{end}_R(M) = \text{Hom}_R(M, M)$
- Que.6 Let M be the R - module then following are equivalent :
- (1) M is noetherian
 - (2) Every submodule of M of finitely generated
 - (3) Every non–empty set S of submodule of M has a maximal element.
- Que.7 State & prove Schroeder – bernstion theorem.
- Que.8 Wedderburn – Artin theorem.
- Que.9 Let M be a noetherian module. Then each non- zero sub module of M contains a uniform modules.
- Que.10 State & prove Noether – Laskar theorem.