



• To emerge as a National center of learning, academic excellence and innovative research in this rural area.

**MISSION**

- To produce post graduate students with strong foundation to join research or to serve in the Society.
- To make students competent in the life that they can never be defeated in the transforming scenario.
- To achieve the high standards of excellence in generating and propagating mathematical knowledge.
- To provide an environment where students can learn, become competent users of mathematics and understand the use of mathematics in other disciplines.
- To create an atmosphere conducive to high class research and to produce researchers with clear thinking and determination who can become experts in future in relevant areas of Mathematics.



**GPS Map Camera**

**Patan, Chhattisgarh, India**

**Collage Road, 2GQM+668, Patan Rd, Patan, Chhattisgarh 491111, India**

**Lat 21.038185°**

**Long 81.533193°**

**28/02/24 01:08 PM GMT +05:30**



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UNIT TEST-1 M.Sc-II Sem (Maths)

Date - 27-02-2024 Paper-5 (Discrete Maths)

Note - Solve five questions from following:

Q1 - Give short notes on

- (i) Konigsberg bridge problem (ii) Isomorphic Graph  
(iii) Complete graph =  $(K_n)$  (iv) Bipartite Graph =  $(K_{m,n})$

Q2 - Prove that in any graph the number of vertices of odd degree is always even.

Q3 - state and prove Hand shaking Lemma

Q4 - Prove that the maximum number of edges in a simple graph with  $n$ -vertices is  $= \frac{n(n-1)}{2}$

Q5 - Let  $G$  be a simple graph with  $n$ -vertices. If  $G$  has  $k$ -components, then the maximum number of edges that  $G$  can have are  $\frac{(n-k)(n-k+1)}{2}$

Q6 - Write short Notes on:

- (i) Subgraph (ii) Complement of a subgraph  
(iii) Degree of a vertex (iv) Simple graph