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RAN-2103000204023001**S.Y.B.Sc. (Sem - IV) Examination April - 2025****MTH - 401 Mathematics - VIII (Old)****Time: 2 Hours]****[Total Marks: 50****सूचना : / Instructions**

(१)

नीचे दशावलि निशानीवाणी विगतो उत्तरवली पर अवश्य लभवी.
Fill up strictly the details of signs on your answer book

Name of the Examination:

☛ **S.Y.B.Sc. (Sem - IV)**

Name of the Subject :

☛ **MTH - 401 Mathematics - VIII (Old)**Subject Code No.: **2103000204023001**

Seat No.:

Student's Signature

- (2) All questions are compulsory.
- (3) Figures to the right indicate marks of the questions.
- (4) Follow usual notations and conventions.

Q.1 Answer any FIVE from the following questions.**10**

- (1) Define : Gamma Function.
- (2) Show that : $\sqrt{n+1} = n\sqrt{n}$, ($n > 0$).
- (3) Evaluate : $\int_0^1 x^4 (1-x)^3 dx$.
- (4) Find the Laplace transform of $F(t) = e^{at}$, ($t > 0$).
- (5) State First Shifting Theorem of Laplace transform.
- (6) Evaluate by Gamma function : $\int_0^\infty x^6 e^{-2x} dx$.
- (7) Evaluate the integral $\int_1^2 \int_2^3 (y^2 + 2xy) dy dx$.
- (8) Evaluate : $L^{-1} \left\{ \frac{2p+1}{p(p+1)} \right\}$

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