**Ramakrishna Mission Vivekananda Educational and Research Institute**

EVALUATION FORM FOR JRF/SRFs

1. Name of the JRF/SRF with designation and date of joining:
   Saikat Goswami, 16th August 2021.

2. Topics of research for the Ph.D. thesis: Topology

3. Research courses attended/Reading courses taken or any other form of training with evaluation by respective authorities on them:

| Sno | Course | Grade/Score | Instructor |
|---|---|---|---|
| 1 | DISCRETE MATHEMATICS | 74/100 | NILANJAN DATTA |
| 2 | BASIC CRYPTOGRAPHY | 80/100 | ARPITA MAITRA, RANA BARUA |
| 3 | ALGEBRA AND IT'S APPLICATIONS | 73/100 | KULDEEP SAHA, APRATIM CHAKRABORTY |
| 4 | MACHINE LEARNING | 85/100 | KAUSHIK SENGUPTA |
| 5 | KNOT THEORY | 69/100 | KULDEEP SAHA, APRATIM CHAKRABORTY |
| 6 | DESIGN & ANALYSIS OF ALGORITHMS | 72/100 | NILANJAN DATTA, RANA BARUA |
| 7 | RESEARCH METHODOLOGY | 92/100 | NILANJAN DATTA, GOUTAM MUKHERJEE, DEBOLINA GHATAK, ARPITA MAITRA |
| 8 | TRENDS IN COMBINATORICS & TOPOLOGY | 62/100 | KULDEEP SAHA, GOUTAM MUKHERJEE, SAJAL MUKHERJEE, ANUPAM MONDAL, APRATIM CHAKRABORTY |

4. Seminars given with dates and titles and summaries:

   [1] TOPIC: Prime numbers & Irreducible Polynomials
   DATE: 10th May 2022
   VENUE: TCG CREST

5. List of major scientific papers/books read, field/laboratory work undertaken in connection with the thesis topic:

**PAPERS**

**[1]** N. Aizawa, M. Harada, M. Kawaguchi, E. Otsuki: *All link invariants for two-dimensional solutions of Yang-Baxter equation and Dressings,* Journal of Knot Theory & its Ramification (2006) 1279-1301.

**[2]** V. G. Turaev: *The Yang-Baxter equation and invariants of links,* Inventiones Mathematicae (1988) 527-553.
**[3]** Goutam Mukherjee, Parameshwaran Sankaran: *Elementary Abelian 2-Group actions on Flag Manifolds and applications,* Proceedings AMS, Vol 126, No.2, 1998.

**BOOKS**

**[1]** Allen Hatcher: Algebraic Topology, Chapter-1 (The Fundamental Group), Chapter-2 (Homology)
**[2]** David M. Jackson, Iain Moffat: An introduction to Quantum and Vassiliev Knot Invariants, Chapter-1 (Knots), Chapter-2 (Knots & Link invariant), Chapter-4 (Braids & Braid group), Chapter-5 (R-matrix representations of B_n), Chapter-6 (Knot invariants through R-matrix representations of B_n)
**[3]** Frank W. Warner: Foundations of Differentiable Manifolds & Lie Groups, Chapter-1 (Manifolds)
**[4]** L. M. Curtis: Matrix Group, Chapter-1 (General linear groups), Chapter-2 (Orthogonal Groups), Chapter-3 (Homomorphisms), Chapter-4 (Exponential and Logarithm)
**[5]** Daniel A. Marcus: Number Fields, Chapter-1 (A special case of Fermat's conjecture), Chapter-2 (Number Fields & Number Rings), Chapter-3 (Prime decomposition in Number Rings), Chapter-4 (Galois Theory applied to Prime decomposition).
**[6]** Fernando Q. Gouvea: p-adic numbers, an introduction, Chapter-2 (Foundation), Chapter-3 (The p-adic Numbers), Chapter-4 (Exploring Q_p)
**[7]** P. E. Conner, E. E. Floyed: Differentiable Periodic Maps.

6. Papers published/accepted for publication with full reference including coauthors (enclose reprints/preprints): N.A.

7. Research/Technical reports prepared with reference including coauthors (enclose preprints): N.A.

8. Teaching duties undertaken with details: N.A.

9. Any other information that may be relevant: N.A.

10. Brief description of work done on the thesis topic: I have recently finished my course work, and am currently reading on advanced topics related to Manifolds, and Vector Bundles. I am also reading the paper [3] related to Cobordism.

Place: TCG CREST

Saikat Goswami — SAIKAT GOSWAMI — 20th July 2022

Signature (JRF/SRF) Date

Specific recommendations of the Supervisor and the RFAC with a brief description of the research work on the thesis topics by the research fellow.

Signature (Supervisor) Date

Signature (Chair – RFAC) Date