SPECIFICATIONS FOR ISOTHERMAL TITRATION CALORIMETRY

We require Isothermal Titration Calorimetry (ITC)with the following components and specifications:

Semi manual ITC unit must be complete with control unit, other start-up accessories, necessary softwares for instrument control, filling & cleaning assemblies, injection syringes, degassing station, operation analysis of data, enabling accurate determination of thermodynamic parameters such as binding constants, stoichiometry, enthalpy and entropy etc.

Adetailedspecifications of required ITC are as follows:

- The operating temperature range shall be within $2 80^{\circ}$ C.
- Peltier controlled system for rapid temperature equilibration.
- Cell material should be enclosed in an adiabatic chamber
- Minimum detectable heat should be 0.1µJ or less.
- Temperature stability of ± 0.005 ° C measured at different time periods
- High sensitivity with base line noise level around 0.5 nCal / sec with a 2 second data filter for ultra sensitive studies.
- Design of the cell should be in such a way that it must provide area surface area for the peltier elements. It should have perfect cell geometry and fast equilibration time.
- Cell material should be fixed in place and non reactive to ensure chemical resistance. Cell should be made of compatible material to work at pH range 2-12 and with different metals (Ca²⁺, Mg²⁺, Zn⁺², Pb, Hg, Mn⁺² etc.),protein, DNA, RNA and other organic compounds.
- The System should have multiple user selectable modes of operation (Response Times) high gain, low gain and medium gain allowing the fastest re-equilibration between injections, thereby providing the shortest experimental times.
- Precise liquid delivery system for accurate and reproducible injections.
- Should have user definablemixing speed.

- Injection syringe and wash module: Should have bubble free sample loading (even with higher viscous solutions).
- The system should allow sample degassing.
- Required Computer with a printer to form an integral part of the supply.
- The system must have the capability to directly measure binding constants accurately in the range of 10^2 to 10^9 M⁻¹.
- It should have software capable of providing user selectable binding models and data merging like:Single site, two site, sequential site, competitive site, enzyme kinetics, displacement and dissociation.
- Trained technicians should install the instrument and ensure it is operating correctly and within specifications. User training at site should also be provided.
- Should provide user manual, warranty of minimum of <u>five years</u> and also long term regular service of the instrument.
- Recruit a JRF for one year and place him/her in IITM to help run the instrument.
- Price should include installation, operator instruction & training at our site.
- UPS for the instrument
- 5 pairs of injection syringes and syringe holder
- All the 'fuses' required for the instrument