Department of Computer Science and Automation
Research Interviews – June 2009
Research Subject Option Form

1. Name of the candidate:

2. Application No.:

3. Category: (SC/ST/OBC/GN):

4. Degree applied for (M.Sc(Engg.) only / Ph.D only / Both):

5. Date of interview:

6. Research subject opted for (see the table overleaf):

   a. First preference:

   b. Second preference:

7. Signature:

Note to the candidate

Please choose one of the areas listed in first column of the table given overleaf as first preference and another area as second preference. There are no vacancies in any other areas of research. You will be tested first in the basic areas listed against the two research areas (that you have chosen) in the second column of the table, and if the interview committee is satisfied with your performance in these basic areas, then more questions in subjects related to the research areas you have chosen may follow. **Note that it is mandatory that you choose at least one research area.**

Example 1: In case you choose data mining as the first preference and E-Commerce as the second preference, then, you will be tested first in the basic areas of probability, matrix theory, and optimization. Other questions related to data mining and E-commerce will follow, only if your performance in the above basic areas is satisfactory.

Example 2: If your first choice is operating systems and second choice is wireless sensor networks, then you will be tested first in the basic areas of operating systems and computer networks. Other questions related to wireless sensor networks and advanced operating systems will follow, only if your performance in the above basic areas is satisfactory.

Please note that you will not be allowed to choose a third area of research after admission – you will be required to choose a faculty member working in one of the areas that you have chosen (in that priority order) as your research supervisor.

Note that candidates under the external registration programme will also be tested in the basic subjects based on the research areas (already chosen by them) according to the table given overleaf.

Table for choosing research preferences

Area of Research	Basic areas to be tested
1. Pattern recognition 2. Data mining 3. Genetic algorithms 4. Machine learning	Probability, and Matrix theory
5. Game theory 6. Auctions 7. E-Commerce	Probability, and Optimization
8. Computer architecture	Computer architecture, and Probability
9. Operating systems 10. Storage systems 11. Distributed systems 12. Wireless sensor networks	Operating systems, and Computer networks
13. Compiler design	Compiler design, and Formal languages and automata theory
14. Programming languages & tools 15. Program analysis	Compiler design, and Programming languages
16. Program verification	Programming Languages, and Mathematical logic
17. Database systems	Data structures & algorithms, and Discrete mathematics
18. Cognitive science	Algorithms, and Discrete mathematics
19. Graph theory	Graph theory, and Discrete mathematics

Note on the Nature of Research Interview

The interview is intended to be a test of the candidate's aptitude and suitability for research in one or both the areas chosen by the candidate and thoroughness of background in related core subjects. The emphasis will be on testing the depth of candidate's understanding of fundamental concepts.

The interview will be in two parts: a written test of about 30 minutes duration on the day of the interview just before the interview session begins (9 AM and 2 PM on each day), followed by an oral interview. The written test will have 10 questions (requiring short answers) on the fundamentals of programming, data structures, algorithms, discrete mathematics, arithmetic, geometry, calculus, logic, probability, and linear algebra. The oral interview will be in the basic areas related to the research areas chosen by the candidate (as explained in the option form and the associated table), conditionally followed by more advanced questions in the specific subject areas of research chosen by the candidate.

It is important for the candidates to come well prepared on the lines suggested above. **The above procedure applies to both regular and external registration programme candidates.**