



Baba Ghulam Shah Badshah University
Rajouri (J&K)

PRE Ph.D. / M.Phil. ENTRANCE TEST 2013
Structure and Syllabus

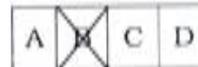
Structure: The syllabus of the entrance test for admission to pre Ph.D. / M.Phil. programme in computer science shall consist of single question paper of one and half hour duration. The paper will contain 50 multiple choice objective questions carrying a maximum of 100 marks. Each question will have four choices for the answer and only one choice will be correct. The candidates will be given a test booklet containing questions. The questions will have serial numbers, 1,2,3, etc. and the answer choice for each question will be marked as a, b, c, d etc. A separate response sheet shall be provided at the end of the booklet to answer the questions.

Methods of answering questions: On the answer sheet, for each question there shall be several spaces i.e. box corresponding to the heading a, b, c & d. While answering any question, the inbox (i.e. a or b or c or d) of the correct answer chosen from the question booklet should be noted and the corresponding box should be crossed against the appropriate question number on the answer sheet. For example for the following question;

Let $T(n)$ be the function defined by $T(1)=1, T(n)=2T\left(\frac{n}{2}\right) + \sqrt{n}$ for $n \geq 2$,
which of the following statement is true?

- (a) $T(n) = O(\sqrt{n})$ (b) $T(n) = O(n)$
(c) $T(n) = O(\log n)$ (d) none of the above.

The answer is (b) and the right way to answer is:



SYLLABUS

Ph.D. / M.Phil. Entrance Test 2013

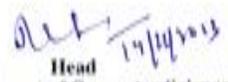
Computer Organization & Architecture: Number representation and computer arithmetic, Logic functions, Minimization, Design and analysis of combinational and sequential circuits, Machine instructions and addressing modes, ALU and data path, CPU control design, Memory interface, I/O interface, Interrupt and DMA mode, Instruction pipelining, Cache and main memory, Secondary storage.

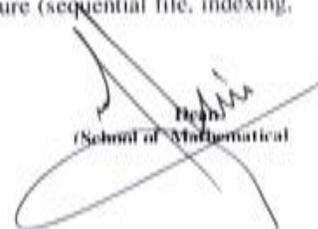
Programming and Data Structure: Programming in C, Basic data type, Storage classes specifier, Escape sequence, Functions, Recursion, Parameter passing mechanism, Structure & union, storage management, File handling, Abstract data type, Arrays, Stack, Queues, Link lists, Trees, Searching and sorting, Asymptotic notion, Notion of space and time complexity, Greedy approach, Dynamic programming, Divide and conquer, Trees and graph traversals, spanning trees & shortest paths.

Operating System: Overview and History, processes and Threads, Thread creation, Manipulation and Synchronization, Deadlock, CPU scheduling, memory management and virtual memory, File system, Protection and security, Unix and Linux operating systems.

Databases: ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constrain, normal forms), Query languages (SQL), File structure (sequential file, indexing, B and B+ trees).


Head 14/11/2013
Department of Information Technology


Head 17/11/2013
Department of Computer Science


Head
(School of Mathematical Sciences)

Computer Networks and Mobile Communication: LAN technologies(Ethernet, Token, Ring), Flow and error control techniques, Routing Algorithms, Congestion Control, TCP/UDP and sockets, IPv4 and IPv6. Application layer protocols (imcp, dns, smtp, pop, ftp, http), Introduction to mobile computing, consideration of data link layer, Channel allocation, Wireless LAN, Bluetooth, Security on mobile computing.

SAMPLE QUESTION PAPER

Duration: 90 minutes

Maximum Marks: 100

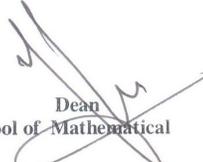
Read the following instruction carefully:

- I) This question paper contains all objective questions and each question carries 2 marks.
- II) More than one mark against a question will be deemed as an incorrect response.
- III) Write your roll no and name at the specified locations.
- IV) Use the blank pages given at the end of the question paper for rough work.
- V) Calculators are allowed in the examination hall.
- VI) Please check all the pages and report if there is any discrepancy.

1. Assuming all numbers are in 2's complement representation, which of the following numbers is divisible by 11101011
 - a) 11100111
 - b) 11100100
 - c) 11010111
 - d) 11011011
2. Which of the following statement is not correct in the context of C language?
 - a) It is a procedural language
 - b) It is an object oriented language.
 - c) It is a third generation language.
 - d) All of the above.
3. Which of the following protocols is connection oriented.
 - a) TCP
 - b) UDP
 - c) SMTP
 - d) ICMP
4. GSM stands for___
 - a) Global Software Management.
 - b) Global Security Module.
 - c) Global System for Mobile.
 - d) Global System for Management.
5. Which of the following hold true about null values.
 - a) Null means zero.
 - b) Null means value is missing.
 - c) Null means value is not known.
 - d) Both b & c.


Head
Department of Information Technology


Head
Department of Computer Science


Dean
(School of Mathematical