

DRAT Syllabus

Section A: Mathematics

Probability and Statistics, Linear Algebra, Discrete Mathematics, Calculus
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Question type: multiple choice questions

Total no. of questions: 30

Total time: 30 minutes

Section B: English reading comprehension

In this section, you will be required to read passages and answer questions based on each passage. The section is scored based on the number of correct reading comprehension responses.
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Question type: Reading passages with questions based on the passages

Total no. of questions: 30

Total time: 30 minutes

Section C: Subject Specific

School of Computer Science and Engineering

PhD Stream	Topics
Computer Science and Engineering	Data Structure, Algorithms, Databases, Computer Networks, Operating System, Principles of Programming Languages, Theory of Computation, Graph Theory, Machine Learning, Cryptography

Question type: multiple choice questions

Total no. of questions: 40 (schools may decide the number of questions as appropriate)

Total time: 60 minutes

School of Digital Sciences

PhD Stream	Topics
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Data Science	Data Structure, Algorithms, Databases, Computer Networks, Operating System, Programming in C and object oriented concepts, Theory of Computation, Graph Theory, Machine Learning, Cryptography
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Question type: multiple choice questions

Total no. of questions: 40 (schools may decide the number of questions as appropriate)

Total time: 60 minutes

School of Informatics

PhD Stream	Topics
Ecology (Ecological Informatics)	<ul style="list-style-type: none"> • <i>Fundamental concepts, Population ecology, Interactions: Community ecology, Ecosystems structure and function.</i> • <i>History of Evolutionary thought, Diversity of life, Life history strategies, Interactions, Population and Quantitative genetics, Molecular evolution and phylogenetics, Macroevolution.</i> • <i>Mathematics and statistics in ecology, Statistical hypothesis testing,</i> • <i>Classical Ethology, Sensory ecology, Foraging ecology, Reproduction, Social living.</i> • <i>Biodiversity and conservation: Disease ecology and evolution: Plant and animal breeding: Global climate change.</i>

Question type: multiple choice questions

Total no. of questions: 40 (schools may decide the number of questions as appropriate)

Total time: 60 minutes

School of Electronic Systems and Automation

PhD Stream	Topics
<i>AI Hardware</i>	<i>Sensor basics, transducers, basic circuit elements, non-linear circuit elements, IV characteristics, Bode plots, stability, KVL, KCL, nodal analysis, neural networks basics, backpropagation algorithm</i>
<i>Computational Imaging Systems</i>	<i>Signal processing basics, Digital signal processing, Image Processing</i>

Candidate to choose **one** among the above two options for the subject specific test

Question type: multiple choice questions

Total no. of questions: 40

Total time: 60 minutes