Candidates appearing for the Ph.D. (CSE) interviews are expected to be familiar with foundational areas of computer science. Additionally, based on the choice of research area(s) identified during the application submission process, the emphasis on topics could vary. Please refer to the table below to see a list of topics from which you are likely to be questioned. Note that questions may be asked from outside the listed areas on occasion.

Research Areas	General CSE Topics	Research Area Specific Topics
Computer Vision	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	Linear Algebra, Image Processing, Machine Learning basics (overfitting/underfitting), Deep Learning basics (CNNs)
Information Security - Networking and Systems Security / Privacy / Anonymity / Online Social Media Security / Multimedia Security	Data Structures and Algorithms, OS, Computer Networks, Programming (C/C++, Assembly)	Basics of cryptography, public-private crypto. etc. (*desirable but not necessary*)
Knowledge Graphs and Semantic Web	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	None
Machine Learning and Data Analytics	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	Statistics (A/B testing, distributions), Machine Learning (overfitting / underfitting, linear & logistic regression, decision trees)
Multimedia Computing & Affective Computing	Linear Algebra, Matrix Algebra, Probability, Programming (Python/C++), Data Structures and Algorithms (including Graphs)	Statistics, Basics of Machine Learning and Deep Learning (Performance Evaluation, Loss funcions, Bias-Variance Analysis, Regularization, Neural Networks, SVM, CNN), Basics of Computer Vision and/or Physiological Signals
Natural Language Processing / Speech Processing	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	NLP (n-gram language models), ML & DL basics / Speech (MFCC, GMMs)
Parallel and Distributed Computing	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	OS, Computer Architecture, C/C++ Programming
Program Analysis & Software Engineering	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	None

Social Network Analysis	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Programming	Graph theory, NLP, ML & DL
Systems and Networks - Wireless Networks / Mobile Computing	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	Computer Networks, Programming, OS, basic network utilities like ping, traceroute, ssh
Theoretical Computer Science - Algorithm Design / Optimization	Data Structures and Algorithms (including Graphs), Probability, DBMS, OS, TOC, Computer Networks, Programming	Algorithms (more specific topics) - divide and conquer, dynamic programming, basic graph algorithms ; Basic Discrete Maths - Recurrence, induction, permutations and combinations, graph theory; Mathematics - standard topics covered in XI-XII & U.G., including probability, linear algebra, algebra, calculus