

Fundamentals_Engineering FE Industrial

DAY	Topic/ Number of Questions	Knowledge Area	√	DAY	Topic/ Number of Questions	Knowledge Area	√	
1	1. Mathematics 6–9	A. Analytic geometry (e.g., areas, volumes)		34	8. Manufacturing, Service, and Other Production Systems 9–14	C. Forecasting (e.g., moving average, exponential smoothing, tracking signals)		
2		B. Calculus (e.g., derivatives, integrals, progressions, series)		35		D. Planning and scheduling (e.g., inventory, aggregate planning, MRP, theory of constraints, sequencing)		
3		C. Linear algebra (e.g., matrix operations, vector analysis)		36		Rest	Rest	
4	2. Engineering Sciences 4–6	A. Thermodynamics and fluid mechanics		37	8. Manufacturing, Service, and Other Production Systems 9–14	E. Process improvements (e.g., lean systems, sustainability, value engineering)		
5		B. Statics, dynamics, and materials		38				
6	Rest	Rest		39	9. Facilities and Supply Chain 9–14	A. Flow, layout, and location analysis (e.g., from/to charts, layout types, distance metrics)		
7	2. Engineering Sciences 4–6	C. Electricity and electrical circuits		40		B. Capacity analysis (e.g., number of machines and people, trade-offs, material handling)		
8				41		C. Supply chain management and design (e.g., pooling, transportation, network design, single-level/multilevel distribution models)		
9	3. Ethics and Professional Practice 4–6	A. Codes of ethics and licensure		42	10. Human Factors, Ergonomics, and Safety 8–12	A. Human factors (e.g., displays, controls, usability, cognitive engineering)		
10		B. Agreements and contracts		43		Rest	Rest	
11		C. Professional, ethical, and legal responsibility		44	10. Human Factors, Ergonomics, and Safety 8–12	B. Safety and industrial hygiene (e.g., workplace hazards, safety programs, regulations, environmental hazards)		
12		D. Public protection and regulatory issues		45		C. Ergonomics (e.g., biomechanics, cumulative trauma disorders, anthropometry, workplace design, macroergonomics)		
13	4. Engineering Economics 9–14	A. Discounted cash flows (e.g., nonannual compounding, time value of money)		46	11. Work Design 7–11	A. Methods analysis (e.g., charting, workstation design, motion economy)		
14		B. Evaluation of alternatives (e.g., PW, EAC, FW, IRR, benefit-cost)		47		B. Work measurement (e.g., time study, predetermined time systems, work sampling, standards)		
15		C. Cost analyses (e.g., fixed/variable, break-even, estimating, overhead, inflation, incremental, sunk, replacement)		48		Rest	Rest	
16		D. Depreciation and taxes (e.g., MACRS, straight line, after-tax cash flow, recapture)		49		12. Quality 9–14	A. Quality management, planning, assurance, and systems (e.g., Six Sigma, QFD, TQM, house of quality, fishbone, Taguchi loss function)	
17	5. Probability and Statistics 10–15	A. Probabilities (e.g., permutations and combinations, sets, laws of probability)		50	B. Quality control (e.g., control charts, process capability, sampling plans, OC curves, DOE)			
18	Rest	Rest		51	13. Systems Engineering, Analysis, and Design 8–12	A. Requirements analysis and system design		
19	5. Probability and Statistics 10–15	B. Probability distributions and functions (e.g., types, statistics, central limit theorem, expected value, linear combinations)		52		B. Functional analysis and configuration management		
20		C. Estimation, confidence intervals, and hypothesis testing (e.g., normal, t, chi-square, types of error, sample size)		53		C. Risk management (e.g., FMEA, fault trees, uncertainty)		
21		D. Linear regression (e.g., parameter estimation, residual analysis, correlation)		54		Rest	Rest	
22		E. Design of experiments (e.g., ANOVA, factorial designs)		55		13. Systems Engineering, Analysis, and Design 8–12	D. Life-cycle engineering	
23		6. Modeling and Quantitative Analysis 9–14	A. Data, logic development, and analytics (e.g., databases, flowcharts, algorithms, data science techniques)		56		E. Reliability engineering (e.g., MTTF, MTBR, availability, parallel and series failure)	
24	Rest	Rest		57	Rest	Rest		
25	6. Modeling and Quantitative Analysis 9–14	B. Linear programming and optimization (e.g., formulation, solution, interpretation)		58	Test, Review	Test, Review		
26		C. Stochastic models and simulation (e.g., queuing, Markov processes, inverse probability functions)		59		Test, Review		
27		7. Engineering Management 8–12	A. Principles and tools (e.g., planning, organizing, motivational theory, organizational structure)			60	Test, Review	
28	B. Project management (e.g., WBS, scheduling, PERT, CPM, earned value, agile)			61		Test, Review		
29	C. Performance measurement (e.g., KPIs, productivity, wage scales, balance scorecard, customer satisfaction)			62		Test, Review		
30	Rest	Rest		63	Rest	Rest		
31	7. Engineering Management 8–12	D. Decision making and risk (e.g., uncertainty, utility, decision trees, financial risk)		64	Exam	Exam		
32	8. Manufacturing, Service, and Other Production Systems 9–14	A. Manufacturing processes (e.g., machining, casting, welding, forming, dimensioning, new technologies)						
33		B. Manufacturing and service systems (e.g., throughput, measurement, automation, line balancing, energy management)						

