



Mechanical Engineering

Examination



Coverage of the Mechanical Engineering Exam

The Mechanical Engineering exam questions will cover the following disciplines:

#	Discipline	Sub-Discipline
1	Thermal Science & Energy Balance	Thermodynamics I
		Thermodynamics II
2	Machine Design	Strength of Material
		Mechanical Design I
3	Dynamics & System Dynamics	Dynamics
		System Dynamics and Vibrations
4	Fluid and Heat	Fluid Mechanics
		Heat Transfer
5	Materials and Manufacturing	Material Science
		Manufacturing Processes

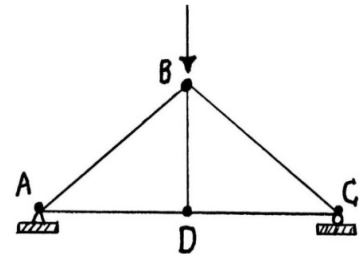
Sample Questions of the Mechanical Engineering Exam

Q1. Velocity is always _____ to the path:

- A. Tangent (correct answer – Low)
- B. Perpendicular
- C. At an angle 45 from the horizontal
- D. None of the answers

Q2. Consider the plane truss shown. The zero force member is:

- A. Member AB
- B. Member BC
- C. Member BD (correct answer – Low)
- D. No zero force member



Q3. In order for a system to be in thermal equilibrium, which of the following properties must be the same throughout the system?

- A. Volume
- B. Temperature (correct answer – Low)
- C. Mass
- D. Pressure

Q4. The pressure drop in a pipe is greater if the flow is ____.

- A. There is no effect on pressure
- B. Turbulent (correct answer – Low)
- C. Laminar
- D. Transient



Recommended References for the Mechanical Engineering Exam

The following references are suggested for the Mechanical Engineering Exam.

1. Hibbeler, R.C. “Engineering Mechanics: Statics”, 11th edition Prentice Hall, 2007.
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3. Hibbeler, R.C. “Engineering Mechanics Dynamics”, 14th edition, Pearson.
4. Budynas, Richard Gordon, and J. Keith Nisbett. *Shigley's mechanical engineering design*. 10th edition, New York: McGraw-Hill, 2014.
5. Meriam, James L., and L. Glenn Kraige. “*Engineering mechanics: dynamics*”, 8th edition, John Wiley & Sons, 2015.
6. Palm, William John. “*System dynamics* “, 3rd edition, McGraw-Hill Higher Education, 2013.
7. Palm, William John. *Mechanical vibration*. John Wiley, 2007.
8. Rao, Singiresu S. “*Mechanical vibrations* “, 6th edition, Pearson, 2016.
9. Munson, Young, and Okiishi, “Fundamentals of Fluid Mechanics”, 6th edition,
10. Cengel, Y. and M. Boles, “Thermodynamics”, 8th edition,
11. Bergman, Theodore L., Frank P. Incropera, David P. DeWitt, and Adrienne S. Lavine. *Fundamentals of heat and mass transfer*. John Wiley & Sons, 2011.
12. D Jr, Callister William. "Materials science and engineering: an introduction." *John Wiley & Sons. Inc.–New York, USA*, 2007.