

**Midterm Exam - Practice****Time allowed: 50 minutes****Open book, open notes****No cell phones****All answers and should be on these pages. Use the backs of pages if necessary, but clearly identify which question your work is associated with.****GRADING SHEET – MIDTERM****NAME:** \_\_\_\_\_

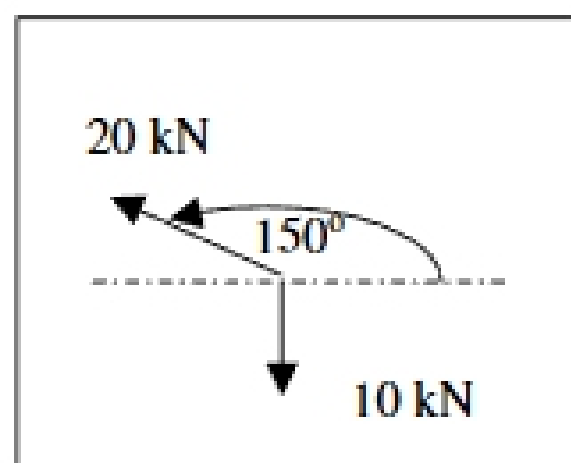
		Points awarded	Max points
Question 1. (20 points)	a) b) c) d)		4 4 6 6
Question 2. (20 points)	a) b) c) Magnitude Direction		5 5 5 5
Question 3. (25 points)	a) Free body diagram b) Equilibrium Equations c) Forces		5 10 10
Question 4. (20 points)	Response Rationale Relationship to code of ethics		5 5 10
Question 5. (15 points total)	Factor 1 Factor 2 Factor 3		5 5 5
<b>TOTAL</b>			<b>100</b>

**QUESTION 1. (Short Answer Questions)**

- a. Why should you get civil engineering related work experience during college?
  
  
  
  
  
  
  
  
  
  
- b. What is Chi Epsilon?
  
  
  
  
  
  
  
  
  
  
- c. What qualifications does a Professional Engineer have?
  
  
  
  
  
  
  
  
  
  
- d. At Thanksgiving your aunt will ask you “So, what is Civil Engineering?”. What is your one or two sentences response?

**QUESTION 2.**

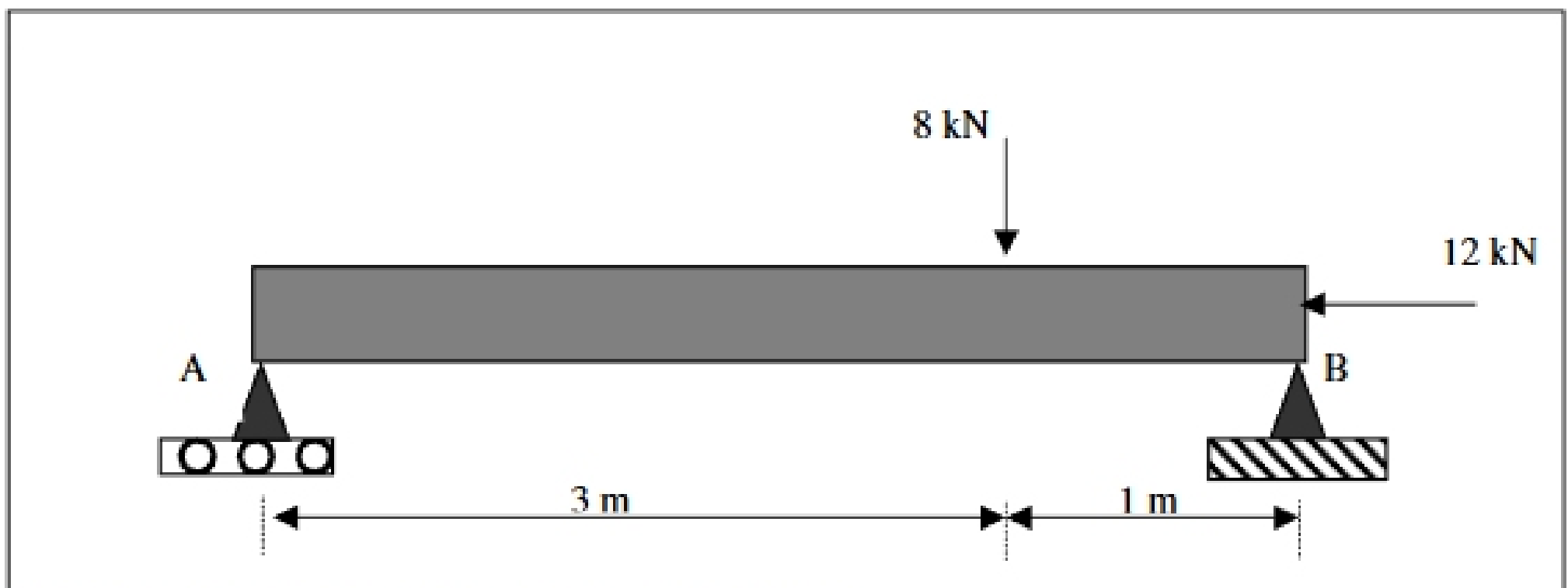
A 20 kN force is applied at  $150^\circ$  to the horizontal. A 10 kN weight hangs vertically from the same point. The following free body diagram represents the two forces.



- a. Compute the horizontal and vertical components of the 20 N force.

- b. Compute the total force in the horizontal and vertical directions for both the 20 kN and 10 kN forces.
- c. Determine the magnitude and direction of the resultant force.

**QUESTION 3.**



Assume the beam in the above diagram is weightless.

- a. Draw the free body diagram for the beam