The Hashemite University
Faculty Of Engineering
Mechanical Engineering Department

Strength Of Materials Lab

Impact Test

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Apply the ***impact test*** on the following ***Specimens:***

Material	Notch Type	Total Absorbed Energy (N.m)		Absorbed Energy by specimen only (N.m)	
Mild Steel	V,U	26	35	26-4=22	35-4=31
Brass	V,U	14	21	14-4=10	21-4=17
Aluminum	V,U	20	24	20-4=16	24-4=20

Absorbed Energy by friction only is ____4 N.m__.

Q1: State the main ***Material Property*** obtained from this test.

Toughness

Q2: In order to perform an impact test, we need high strain rate, in other words a ***shock load***. What is the constrain (condition) of applying a ***shock load***?

Time of impact <(1/3)wn

Q3: According to the above table, answer the following questions:

A. Why we use ***notched specimens***?

Increase stress concentration

B. Which specimens from the ***same material*** absorb ***higher*** amount of energy and why?

U notch → low stress concentration

C. Which specimen absorbed higher energy (Mild Steel or Brass), and why?

Mild steel →more ductile

Q4: If we apply ***the same impact load*** on ***the same specimens*** but at ***different temperature***, what you think will happen? Explain.

Sol : inversely of the ductility of material will increase >>>toughness will increase >>>it will absorb more energy .

Q5: Compare between impact test and tensile test.

	Impact Test	**Tensile Test**
Type of Load	shock	static
Strain Rate	High	low
Specimen's Notch	U and V	No notch

Q6: state two differences between **Charpy** and **Izod** test ?

Charpy Test	**Izod Test**
1- Opposite side to the notch 2- Two shearing area (more energy)	1- Same side to the notch (facing the notch) 2- One shearing area (less energy)