For Final Exam :

Nov. 28/18

Review: 25 % Definitions (no m/c)
75 % Calculations

Lecture 3 (Chapter 3)
↳ no direct questions, but need concepts

Lecture 6 (Chapter 4)

Lecture 7 (Chapter 5)

Lecture 8 (Chapter 6)

Lecture 9 (Chapter 12) → First portion not included
(Chapter 15) → stress-strain of diff. polymers
glass transition temp.

(*) { Lecture 10 (Chapter 7)
Lecture 11 (Chapter 9)

9.19 7.5 kg of α phase, just below 300°C

$\simeq$ 17 wt% (From graph)

a) Mass of Pb ?

$m_{Pb} = 0.17 \times 7.5\ kg = 1.275\ kg$

b) Now heat to 400°C

$\simeq$ 32 wt% (From graph)

x is the mass (kg) of additional Pb

$$0.32 = \frac{1.275 + x}{7.5 + x} \rightarrow x = 1.65\ kg$$

9.27 5.7 kg of alloy { 50% Mg, 50% Pb }

Mass of Mg_2Pb = 0.57 kg

Mass of α = 5.13 kg

→ Select arbitrary temperature ($\simeq$ 300°C)

$$\begin{cases} w_\alpha = \frac{5.13}{5.7} = 0.9 \\ w_{Mg_2Pb} = 1 - w_\alpha = 0.1 \end{cases}$$

$$w_\alpha = \frac{81 - 50}{81 - C_\alpha}$$

C_α = 46.6% > 41%, thus not possible.