Assignment 12

The due date for submitting this assignment is Due on 2023-12-09, 23:59 IST.

1. Select the process suitable for making a part composed of high density, fine-grained grains.
   - Hot Pressing
   - Isothermal Forging
   - Powder forging
   - Sintered forging
   - Acceptable answer: Sintered forging

2. Select the processes that are used in a compacted part or a sintered part during sintering.
   - Sintering process
   - Powder forging
   - Convex forging
   - Acceptable answer: Sintering process

3. During the sintering process, as the temperature increases, the yield strength increases.
   - True
   - False
   - Acceptable answer: True

4. Consider the following statements regarding Sintered Powder Metallurgy:
   - Sintering occurs at a temperature lower than the melting point of the powder.
   - Sintering occurs at a temperature higher than the melting point of the powder.
   - Sintering occurs at a temperature equal to the melting point of the powder.
   - Acceptable answer: Sintering occurs at a temperature lower than the melting point of the powder.

5. Consider the following statement:
   - Sintering is a process that occurs above the melting point of the powder.
   - Sintering is a process that occurs below the melting point of the powder.
   - Sintering is a process that occurs at the melting point of the powder.
   - Acceptable answer: Sintering is a process that occurs below the melting point of the powder.

6. Select the nature of the force applied during a conventional hot pressing process.
   - Uniaxial
   - Biaxial
   - Triaxial
   - Isotropic
   - Acceptable answer: Uniaxial

7. Consider the following statements regarding hot pressing:
   - Procedure is rapid
   - Large area of the part can be produced in a single pressing
   - Sheet can be used instead of billets
   - Conventional forming is not a serious concern
   - Acceptable answer: Large area of the part can be produced in a single pressing

8. The correct sequence of events that happen in a spark plasma sintering process is:
   - Pulsed laser heating, plasma heating, plastic flow
   - Plasma heating, pulsed laser heating, plastic flow
   - Plasma heating, pulsed laser heating, plasma flow
   - Acceptable answer: Plasma heating, pulsed laser heating, plastic flow

9. Coat formation takes place in which stage of the SPS process?
   - Post-process heating
   - Plasma heating
   - Post-process cooling
   - Acceptable answer: Post-process heating

10. The processing conditions of SPS process is:
    - High voltage, low current (AC)
    - Low voltage, high current (AC)
    - High voltage, low current (DC)
    - Low voltage, high current (DC)
    - Acceptable answer: High voltage, low current (DC)

11. Surface activation occurs as a result of:
    - Generation of spark plasma
    - Spark ignition pressure
    - Joule heating
    - Acceptable answer: Generation of spark plasma

12. Generation of spark plasma
    - Acceptable answer: Generation of spark plasma