

Sai Nath University Assignment For B.Tech in Mechanical Engineering 8th Sem.

I.D. NO-

NAME :

COURSE NAME:

STREAM :

UNIVERSITY :

SEM :

Machine Tool Design

PART-A

- Q1-Explain the design procedure of speed gear box.
- Q2- Enlist various requirement of machine tool design. One of the requirement of machine tool should have good surface finish , which depends on Machine tool design vibrations.
- Q3- Why geometric progression series is preferred over arithmetic progression series ? Discuss their merits and demerits.
- Q4- Explain function of machine tool design structure and also discuss about their requirement during design.
- Q5- What is ray diagram ? Compare various section of bed and discuss how their rigidity of bed section is increased.

PART-B

- Q1-Explain hydraulic circuit for shaping and grinding machine.
- Q2-Compare various shapes of slid ways. Explain design procedure for a spindle of lathe machine.

Jigs And Fixture Machine

PART-A

- Q1. State how carbon content influences the strength and ductility of plain carbon steels.
- Q2. State how the properties of alloy steels are affected by following alloying elements : Manganese, Chromium and Tungsten.
- Q3. Write down the composition of two copper based alloys and their applications.
- Q4. Explain the necessity of heat treatment for steels. Describe the process of quenching.
- Q5. Describe in brief the time-temperature transformation curve for steel.

PART-B

- Q6. Explain in brief the case hardening process.
- Q7. What do you mean by dislocation ? Explain edge dislocation and line dislocation.
- Q8. What are the eutectoid and eutectic reactions in the Fe — C binary phase diagram ? Explain.

REFRIGERATION AND AIR-CONDITIONING

PART-A

Q1. Define the term Subcooling. What functions are fulfilled by a capillary tube in a refrigeration system

? How does it work ?

Q2. What is the effect of subcooling on compressor work, refrigerating effect and COP ?

What is the function of an evaporator ?

Q3. What are the practical difficulties in achieving subcooling in a refrigeration system ?

Q4. What are the different elements of a centrifugal compressor and describe the function of each ?

Describe the working of a simple vapour absorption system with the help of a neat sketch.

PART-B

Q1. Describe the problem of ozone layer depletion and global warming in brief. What is the contribution of refrigerants to these problems ?

Q2 Draw the psychrometric chart and show the different constant property lines on it.