Mechanical Engineering Department

Time: 2 hours. **Casting Technology** **Max Marks 80**

Q1. Make a detailed process plan to cast the following engine parts. Identify the suitable materials. Provide with all the gating systems for your chosen product size and shape. Show the dimensions of the parts and the mould on the sketches.

(a) Crank shaft of a Truck Engine

(b) Cam shaft of an automobile (passenger car).

Q2. Distinguish between solidification of a pure substance and an alloy. How this knowledge about solidification helps in the design of sound castings? Give four defects of sand casting and their remedies.

Q3. (a) What is zone refining , describe the method of Pffan for purification of materials.

(b) "Casting is a process which for its success requires the understanding of fluid flow and heat flow besides some other aspects" Indicate the governing equations for fluid flow and heat flow which are important to justify the above statement.

Q4. Write short notes on any four of the following.

(a) Casting of composites.
(b) Nano materials
(c) Cast irons
(d) Aluminum and its alloys.
(e) Metal Rubber.