Exam No._____

GANPAT UNIVERSITY

B.TECH SEM. VI MECHANICAL ENGINEERING

CBCS Regular Examination May-June 2013

2ME602 Metal Forming & Fabrication Technology

TIME:-3 HOURS **TOTAL MARKS-70**

INSTRUCTION: - (1) Attempt all questions.
(2) Assume suitable data if necessary.
(3) Figures to the right indicate full marks.

Section-I

Que.-1

(a) Write short notes on "Strain hardening" 12

(b) How seam less tube produced in rolling process?

(c) Explain the feature of different types of rolling mills.

OR

Que.-1 12

(a) Define the forming and classify metal forming process.

(b) Define the following terms:
(i)Ingot (ii) Bloom (iii) Billet (iv) Plate (v) Sheet (vi)Foil

(c) Define the rolling process which reduces the large cross section of billet in one pass. Also discuss in detail.

Que.-2 11

(a) List the advantages and disadvantages of forging process compare to other process.

(b) Explain following forging operation.
(i) Cogging (ii) Fullering (iii) Edging (iv) Piercing

(c) Enlist and explain process variable in direct Extrusion.

OR

Que.-2 11

(a) Define forgeability. On what factor do it depends?

(b) A Cold extruding Al-1100 (K= 140 MPA, n= 0.25) 10 cm diameter billet to a diameter of 5 cm at 1m/min. The billet is initial 25cm long. The ram is made of a high strength steel with a yield stress of 1.5GPa determine force and power required for extrusion also find out safety factor for indenting the ram.

(c) Explain extrusion defects with neat sketch.

Que.-3 **Answers the any three of following:** 12

(a) Describe a progressive, a combination and compound die.

(b) With suitable sketch explain the different types of thermal forming process in plastic manufacturing.

(c) Write short note on "Wire Drawing operation".

(d) Enlist and explain mechanical press in forging.

Section-II

Que.-4 12

(a) Explain characteristic of gas welding flames.

(b) Distinguish between

(i) AC power source and DC power source for welding

(ii) Constant current and constant voltage characteristic

(c) Explain the Gas tungsten arc welding process with neat sketch.

OR

Que.-4 12

(a) Enlist the various oxy acetylene gas welding equipment with neat sketch.

(b) Explain the following terms:

(i) Weldability (ii) Straight polarity (iii) Crater (iv) Duty Cycle

(c) Shows and discuss the different types of welding position.

Que.-5 11

(a) Discuss the following welding defects causes and remedies

(i) Slag inclusion (ii) HAZ (iii) Arc blow (iv) Lack of fusion

(b) Write short note on "Explosive welding".

(c) Explain the method of laser beam welding and give their applications.

OR

Que.-5 11

(a) Explain with suitable sketch "Submerged Arc Welding" process in detail.

(b) Enlist various types of mode of metal transfer with suitable sketch in MIG welding.

(c) Describe the Ultrasonic welding process with suitable sketch and also state merit, demerit and its application.

Que.-6 **Answer any three of following:** 12

(a) Differentiate the welding, brazing and soldering.

(b) State the function of flux coating in arc welding.

(c) Write short note on " Plasma Arc Welding"

(d) Write a short note on "Thermit Welding"

END OF PAPER