

GANPAT UNIVERSITY
B.TECH SEM. VI - MECHANICAL ENGINEERING
CBCS REGULAR EXAMINATION April - June 2015
2ME602 METAL FORMING & FABRICATION TECHNOLOGY

Time: 3 Hours

Total Marks: 70

Instructions:

- (1) All questions are **compulsory**.
- (2) Figures to the **right** indicate full marks.
- (3) Answers to the two sections must be written in **separate** answer books.

SECTION – I

- Q. 1 Answer the following questions.** [12]
- [A] Explain the features of neutral, reducing and oxidizing flame? Why is reducing flame so called?
- [B] Explain the following term:
1. Weldability 2. Duty cycle
3. Tack weld 4. HAZ
- OR**
- Q. 1 Answer the following questions.** [12]
- [A] Classify metal joining processes. Explain the principle of gas welding process with its advantages, limitations and its applications.
- [B] Define the following terms.
1. Electrode 2. Shielding gas
3. Flux 4. Filler materials
- Q. 2 Answer the following questions.** [11]
- [A] Explain electron beam welding process and state its advantages and limitations.
- [B] What determines whether a certain welding process can be used for work piece in a horizontal, vertical, or an upside down position, or for all types of positions? Explain, giving appropriate examples.
- OR**
- Q. 2 Answer the following questions.** [11]
- [A] Manual metal arc welding is preferred for applications like repair & maintenance work and structural work. Justify with the help of welding requirements of these applications and capabilities of MMAW.
- [B] Differentiate between TIG and MIG welding processes.
- Q. 3 Attempt any three.** [12]
- [A] Write a short note on friction welding with its advantages and limitations.
- [B] Explain resistance seam welding with neat sketch.
- [C] Differentiate between straight polarity and reverse polarity.
- [D] Describe the major forms of distortions likely to occur during welding.

SECTION - II

- Q. 4** Answer the following questions. [12]
- (A) Enlist the assumption in analysis of rolling process and also derive the equation for maximum reduction, $\Delta h_{\max} = \mu^2 \cdot R$ in rolling.
- (B) Define extrusion and classify them. Also state the applications of extrusion.
- (C) Write a short note on "Impact Extrusion" with a neat sketch.
- OR**
- Q. 4** Answer the following questions. [12]
- (A) Explain with sketches the difference between direct and indirect extrusion.
- (B) Enlist various types of rolling mills and explain the tandem rolling mill with neat sketch.
- (C) Explain the different defects in the metal rolled parts.
- Q. 5** Answer the following questions. [11]
- (A) Write a short note on "Guideline for selection of forging processes".
- (B) Explain deep drawing and stretch forming processes with neat sketch.
- (C) Explain embossing process with neat sketch.
- OR**
- Q. 5** Answer the following questions. [11]
- (A) Explain the following operation with a neat sketch.
1. Perforating 2. Notching 3. Nibbling
- (B) Enlist the various types of forging hammers and explain power drop hammers with neat sketch.
- (C) Explain close die forging and flash less forging with neat sketch.
- Q. 6** Answer the following questions. [12]
- (A) Differentiate between hot working and cold working processes.
- (B) Give a short note on tube drawing.
- (C) Explain blow molding process along with its advantage, limitations and applications.

END OF PAPER