Code No: R09220301 **R09** **Set No. 2**

II B.Tech II Semester Examinations,APRIL 2011
PRODUCTION TECHNOLOGY
Common to ME, IT, MECT, AME, CSE

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) How can you classify the forging process? Discuss.
   (b) How does metal act above its re-crystallizationin temperature? State the advantages of hot working over cold working? [7+8]
2. (a) Explain the function of planetary hot rolling process?
   (b) Describe briefly the meaning of draught and elongation as related to hot rolling? [7+8]
3. (a) What is permeability and why is it important in molding sands?
   (b) What are the advantages, disadvantages and limitations of casting process? [7+8]
4. (a) Why do properties vary widely in most welding heat affected zones?
   (b) With the help of a neat sketch explain the inert gas welding process. [8+7]
5. (a) Explain various resistance welding processes?
   (b) Write about gas welding equipment. [7+8]
6. With the help of suitable diagrams discuss the following casting methods.
   (a) True-Centrifugal casting
   (b) Semi Centrifugal casting
   (c) Centrifugal Casting. [5+5+5]
7. (a) What is the main advantage of Injection moulding for thermoplastics parts as compare to hot compression moulding?
   (b) Explain the method used for processing of Bottle, floatable objects of thermoplastics? With neat sketch? State its advantages? [7+8]
8. A cylindrical cup, 100 mm diameter and 85mm deep is to be drawn from a steel sheet of deep drawing quality, 1nm thick. Determine the blank diameter and the other drawing variables for the dies of all draws. Also, estimate the drawing lead if the tensile strength is 415 MPA. [15]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R09220301 **R09** **Set No. 4**

II B.Tech II Semester Examinations,APRIL 2011
PRODUCTION TECHNOLOGY
Common to ME, IT, MECT, AME, CSE

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) List and explain the destructive tests applied in welding.
   (b) What are the essential steps in brazing operation? [8+7]
2. (a) How a hot chamber die casting differs from cold chamber die casting?
   (b) What are the advantages of investment casting? [7+8]
3. (a) Describe the various additives with their uses added in plastics?
   (b) Discuss briefly machining of plastics? [8+7]
4. (a) Distinguish between friction in hot rolling and cold rolling.
   (b) Explain briefly re-crystalization and grain growth in hot rolling? [7+8]
5. (a) Derive the forces required in extrusion process?
   (b) When extruding 40mm diameter billets through a die with a 28mm opening 45^0 half cone angle, the centre burst defect is found to be very frequent, suggest a remedy along with the justification. [7+8]
6. (a) What are the criteria to be used for designing the pouring basin? Discuss briefly.
   (b) What are split and multi piece patterns? What are the advantages of making them in two or more pieces? Give examples. [7+8]
7. (a) Why is it possible for fusion zone to have a chemistry that is different from that of the filler metal? Explain.
   (b) Sketch and explain various welding positions? [7+8]
8. (a) Explain the coining operation with a neat sketch?
   (b) Describe briefly the deep drawing operation with a neat sketch? And discuss its advantages and applications? [7+8]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R09220301 **R09** **Set No. 1**

II B.Tech II Semester Examinations,APRIL 2011
PRODUCTION TECHNOLOGY
Common to ME, IT, MECT, AME, CSE

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Derive an expression for pressure, Torque, Power for rolling? [15]
2. Explain the working of various types of punches used in press working? [15]
3. (a) What are the important considerations to be taken while designing plastic parts? Discuss?
   (b) Explain briefly testing of plastics? [7+8]
4. What are the reasons for various defects observed in welding? List out the welding defects. Suggest remedies? [15]
5. (a) State the difference between short and long freezing ranges. How is range determined?
   (b) List the advantages and limitations of die casting? [7+8]
6. (a) Describe some special types of patterns and indicate the production circumstances in which each would be used.
   (b) Define shrinkage allowance and indicate its value for some of the common metals. [8+7]
7. Write the expression for determining the force required to produce an extrusion and discuss the effect of various parameters on the extruding force? [15]
8. Explain the process of thermit welding. Where would you recommend it? State and explain clearly the controlling parameters that influence the thermit welding. [15]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R09220301 **R09** **Set No. 3**

II B.Tech II Semester Examinations,APRIL 2011
PRODUCTION TECHNOLOGY
Common to ME, IT, MECT, AME, CSE

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What three basic types of current and polarity are used in arc welding?
   (b) What is the difference between a consumable and non consumable electrode? For which process does a filler metal have to be added by a separate mechanism? [7+8]
2. Give the classification of rubbers? Explain natural rubber, synthetic rubbers, Elastomers used as rubber. [15]
3. Describe the functions and characteristics of electrodes. What functions do coatings have? How are electrodes classified? [15]
4. (a) Explain the bending operation with neat sketch.
   (b) Derive an expression for Bending force. [7+8]
5. (a) Explain the functioning of two-high rolling mill and multi-pass-rolling mill ?
   (b) Discuss briefly the factors affecting the rolling process? [8+7]
6. A cylindrical lead alloy billet of 70mm dia and 100mm length is extruded to a final diameter of 35mm by using backward extrusion process. The average tensile yield stress for the alloy is 12 N/mm^2. Determine the maximum force required. Make suitable assumptions to first derive the extrusion for the force? [15]
7. (a) Sketch a graph of specific volume Vs Temperature for a metal that shrinks as it cools from the liquid state to room temperature. On graph, mark the area where shrinkage is compensated for by risers?
   (b) What is the difference between the solidification of pure metals and metal alloys? Explain. [7+8]
8. (a) What are the necessary steps involved in sand moulding? Explain.
   (b) What are the functions of core bonding agents and what are some of the important features of the bonds that allow them to serve their purpose?[7+8]

⋆ ⋆ ⋆ ⋆ ⋆