Code No: R22034 **R10** SET - 1

II B. Tech II Semester Regular Examinations August – 2014
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) What are the factors to be considered before selecting the material for a pattern?
   b) When do you use a i) Solid Pattern, ii) Split pattern andiii) Match Pattern? Give reasons and an example in each case. (6M+9M)

2. a) What are the factors which govern the choice of a particular type of furnace for melting a particular metal?
   b) Describe the constructional features of a Cupola furnace. (7M+8M)

3. a) Explain the process of thermit welding and discuss its advantages?
   b) Explain the classification of welding process. (8M+7M)

4. What are the reasons for various defects observed in welding? List out the welding defects. Suggest remedies? (15M)

5. a) Explain recrystallization and grain growth processes and their effect on properties of a metal worked component.
   b) Derive the expression for power required in rolling operation. (8M+7M)

6. a) What are the similarities and differences between piercing and blanking?
   b) Why are multiple passes usually required in wiredrawing operations? Explain. (7M+8M)

7. What are the characteristics of any forging machine? Explain the process of closed die forging. Explain the importance of flash. (15M)

8. a) Would you use thermosetting plastics for injection molding? Justify your answer.
   b) Outline the precautions that you would take in processing plastics. (8M+7M)
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Code No: R22034 **R10** SET - 2

II B. Tech II Semester Regular Examinations August – 2014
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) Can ice is used for pattern material? Justify your answer.
   b) What are different types of gates? (7M+8M)

2. a) Write the product applications of Semi-Centrifugal and Centrifugal casting methods.
   b) Write the advantages, limitations and product applications of investment casting methods. (7M+8M)

3. a) Explain how Oxy-acetylene torch can be used for both welding and cutting?
   b) What does a thermit mixture consists of and what reactions take place in thermit welding? (7M+8M)

4. a) What is the basic principle of explosive welding? Explain.
   b) Describe the types of fluxes used in soldering and their applications? (8M+7M)

5. a) Describe forces and geometrical relationships in rolling and explain the effect of variables on rolling load and process.
   b) Derive equations for torque and horse power required in rolling. (7M+8M)

6. a) What are the various ways in which presses can be classified?
   b) Explain shearing action in press working? (7M+8M)

7. a) Describe deformation in extrusion and explain possible defects and suitable remedies?
   b) Derive an equation for ideal extrusion pressure. (7M+8M)

8. a) Describe the advantages of cold forming of plastics over other processing methods?
   b) Name the major methods used in processing reinforced plastics? (8M+7M)
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Code No: R22034 **R10** SET - 3

II B. Tech II Semester Regular Examinations August – 2014
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) What do you mean by an allowance? List out different allowances.
   b) What points are to be considered before the selection of "casting process" for manufacturing a component? Explain. (8M+7M)

2. a) Differentiate between directional and unidirectional solidification.
   b) Compare cold chamber and hot chamber method of die casting. (7M+8M)

3. a) Describe the appearance and properties of i) Neutral Flame ii) Reducing Flame iii) Oxidizing flame.
   b) How does straight polarity differ from reverse polarity? (9M+6M)

4. a) Explain the reasons and suggest remedies for the following welding defects
   i) Distortions ii) Cracks.
   b) Distinguish between TIG welding and MIG welding? (8M+7M)

5. a) What is the significance of recrystallization temperature in metal working?
   b) Sketch common types of rolling mills and briefly state the products of each. (7M+8M)

6. a) Explain residual stresses in rods, wires and tubes drawn.
   b) Explain the process of piercing. How does it differ from hot spinning? Explain (7M+8M)

7. a) Describe forging equipment. Compare closed die forging with open die forging.
   b) Suggest and explain the method of manufacturing collapsible tubes? (8M+7M)

8. a) Explain the steps involved in injection moulding of plastics.
   b) What are different additive agents in plastics? Explain. (8M+7M)
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Code No: R22034 **R10** SET - 4

II B. Tech II Semester Regular Examinations August – 2014
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. 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. (7M+8M)

2. a) Describe the solidification of a pure metal with a neat sketch.
   b) Large castings are not made by investment casting. Comment. (8M+7M)

3. a) Describe the reaction that take place in an oxy fuel gas torch. What is the level of temperature generated? Explain.
   b) Describe the procedure to be followed in an oxy fuel gas welding operation? (8M+7M)

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. (7M+8M)

5. a) How is neutral point defined in rolling? What is its significance?
   b) List the parameters effecting coefficient of friction in rolling and explain them. (8M+7M)

6. a) Describe production of seamless pipes and tubes.
   b) Explain rod and wire drawing processes. (8M+7M)

7. a) Distinguish between forward extrusion and backward extrusion.
   b) What are the various forging hammers? Discuss their advantages and limitations. (8M+7M)

8. With the help of suitable figures explain the injection moulding process of plastics? What are the advantages and applications? (15M)
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