

(Please write your Exam Roll No.)

Exam Roll No. ....

# END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] DECEMBER 2013

Paper Code: ETME105

Subject: Manufacturing Process  
(New Syllabus)

Time : 3 Hours

Maximum Marks : 75

Note: Attempt any five questions including Q.no. 1 which is compulsory.  
Select one question from each unit.

Q 1.

- (A) How cast iron differs from steel?
- (B) Explain resistance welding principle.
- (C) Tempering is usually performed after quenching-Explain.
- (D) What are the functions of flux in welding process?
- (E) In carbon arc welding which polarity is preferred and why?
- (F) Differentiate core print and chaplets?
- (G) Differentiate between hot and cold chisel with neat sketch.
- (H) What is strain hardening?
- (I) What is sintering?
- (J) What do you understand by open fire and stock fire?

(2.5×10= 25)

## \*\*\*\*\*Unit 1\*\*\*\*\*

- Q2. (a) State the compositions and one application of Brass and Duralumin. (2.5)  
(b) Describe different components of gating system with neat sketch. (5)  
(c) Write short notes on (i) Normalizing and (ii) Case Hardening. (2.5×2=5)

Or

- Q2. (a) State three casting defects and their possible reasons. (2.5)  
(b) Describe different zones in cupola with neat sketch. (5)  
(c) Describe briefly the following casting process with neat sketches.  
(i) Hot chamber die casting and (ii) Permanent mould casting. (2.5×2=5)

## Unit 2

- Q3. (a) Sketch and describe the following forging tools  
(i) Blacksmith Forge (ii) Punch (iii) Flatter. (5)  
(b) Describe the following operations with neat sketch.  
(i) Forge welding and (ii) Drop forging. (5)  
(c) Classify different types of hammer used in forging operation. (2.5)

Or

- Q3. (a) Classify files according to the grade or teeth per inch. (2.5)

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(b) Explain the following operations

(i) Draw filing and (ii) chipping.

( $2.5 \times 2 = 5$ )

(c) Explain external threading and internal threading operation and draw the tools by which these operations can perform?

(5)

### **Unit 3**

**Q4.** (a) Explain electrode coding according to American Welding Society (AWS). (2.5)

(b) Describe atomic hydrogen welding with neat sketch and state its advantages and disadvantages. (3+2)

(c) Describe different gas flames used in gas welding with their temperature range? (3+2)

**Or**

**Q4.** (a) Discuss with the help of neat sketch, the principle of resistance welding. What is straight polarity and reverse polarity? (3+2)

(b) State three welding defects and their possible reasons. (2.5)

(c) Explain the following welding processes with neat sketch.

(i) Submerged arc welding and (ii) Flash Butt welding

( $2.5 \times 2 = 5$ )

### **Unit 4**

**Q5.** (a) Discuss the application of shear in blanking and punching operation. (2.5)

(b) Explain the following sheet metal operations with neat sketch

(i) Nibbling (ii) Coining (iii) Embossing (iv) Notching

( $2 \times 4 = 8$ )

(c) What is spring back phenomenon in sheet metal operation? (2)

**Or**

**Q5.** (a) Describe briefly the methods by which powders for powder metallurgy can be produced? (5)

(b) What do you understand by powder metallurgy? What are the main stages of powder metallurgy process? (3)

(c) List the advantages, disadvantages and applications of powder metallurgy process? (2.5)

(d) Name two supporting, measuring and cutting tools used in sheet metal shop. (2)

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## END TERM EXAMINATION

FIRST SEMESTER [B.TECH] JANUARY-FEBRUARY 2015

Paper Code: ETME-105

Subject: Manufacturing Process  
(2013 Onwards)

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each Unit.

- Q1 (a) What are the functions of flux in the welding process? With example.  
(b) What is Strain hardening?  
(c) Define sintering.  
(d) Define Stiffness.  
(e) Differentiate between Wrought Iron and Cast Iron.  
(f) Define Non-Pressure Welding, also give example.  
(g) Why sprue size reduces downwards? What is ideal shape of sprue? and why?  
(h) Why cleaning of joints are important before welding?  
(i) What do you mean by Swaging? When Swaging is used?  
(j) What is the principle of arc generation in arc welding?  $(10 \times 2.5 = 25)$

### Unit-I

- Q2 (a) Differentiate between Spheroidise Annealing & Diffusion Annealing. What changes in property will occur by Spheroidise Annealing process on Stainless Steel. (6.5)  
(b) What is Gating Ratio? Explain with neat sketch elements of gating system in casting. (6)

- Q3 (a) Explain composition of high carbon steel & Tool steel. Which heat treatment is provided on tool steel & why? (6.5)  
(b) What is Master pattern, give example? If casting of gray cast iron is to be done then explain allowances of Master pattern. (6)

### Unit-II

- Q4 (a) Explain with neat sketch seven forging defects with remedies. (6.5)  
(b) Explain with neat sketch marking tools. (6)

- Q5 (a) Explain with neat sketch:  
    (i) Upsetting operation.  
    (ii) Wire drawing operation.  
(b) (i) Differentiate between die and tapping operation with diagram.  
    (ii) Explain with neat sketch major tools used in fitting shop. (3) (3)  
 $(3 + 3.5 = 6.5)$

### Unit-III

- Q6 (a) Explain with neat sketch carbon arc welding and its applications. Which polarity system is used in fusion welding process? (6.5)  
(b) Explain different welding joints and its five defects with diagram. (6)

- Q7 (a) What are the differences between arc welding and submerged arc welding process? List along with block diagram of these processes. (6.5)  
(b) What is Flux? Give its composition and properties. (6)

### Unit-IV

- Q8 (a) Describe various tools & equipments with neat sketch used in sheet metal work. (6.5)  
(b) Explain mechanical Pulverization. What are different characteristic of metal powder? (6)

- Q9 (a) What is Drawing? How is it different from 'Deep Drawing'? What is Strain Hardening? Is it problem in Deep Drawing? If so, what is the solution? (6.5)  
(b) What are differences between primary & secondary process w.r.t. Powder Metallurgy? Differentiate between pre-sintering and sintering process. (6)

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**END TERM EXAMINATION**

FIRST SEMESTER [B.TECH.] DECEMBER 2015

**Paper Code: ETME-107****Subject: Manufacturing Process****Time: 3 Hours****Maximum Marks: 75**

**Note: Attempt any five questions including Q no. 1 which is compulsory  
Select one question from each unit.**

- Q1** (a) What is the purpose of a Core and a Core print in a Mould? (2.5)  
 (b) What is Draft Allowance in a Pattern? (2.5)  
 (c) What is the role of Dowell pins in a split pattern? (2.5)  
 (d) What are the advantages of Forging over casting process? (2.5)  
 (e) List any five defects possible in a Forging process. (2.5)  
 (f) What is the use of a Surface Plate and a V Block in a fitting shop? (2.5)  
 (g) List three functions of a flux in gas welding process. (2.5)  
 (h) What are the main ingredients of a coated electrode used in arc welding? (2.5)  
 (i) What is the difference between Punching and Blanking? (2.5)  
 (j) What is the basic difference in Embossing and Coining Processes? (2.5)

**UNIT-I**

- Q2** (a) Explain with neat diagram the construction, operation and different zones in a Cupola Furnace. (6.5)  
 (b) Discuss any four types of patterns used in sand moulding process. (6)
- Q3** (a) Explain with neat sketches, the process of Centrifugal Casting. (6.5)  
 (b) List any four casting defects. Explain their cause and remedies. (6)

**UNIT-II**

- Q4** (a) Explain with neat sketches the process of Drop Forging. (6.5)  
 (b) Explain the procedure of accurate Internal Thread cutting in fitting shop. (6)
- Q5** (a) Draw a neat sketch of a 'File' used in fitting practices and label its various sections. Explain how these are classified. (6.5)  
 (b) Explain 'Upsetting' and 'Swaging' operations in smithy. (6)

**UNIT-III**

- Q6** (a) Explain with a neat sketches the process of Submerged Arc Welding. (6.5)  
 (b) Explain Soldering. List three each of its types and applications. (6)
- Q7** (a) Explain with neat sketches, the difference in three types of flames formed in Gas welding. Discuss their application areas. (6.5)  
 (b) Discuss the Process, merits and demerits of Resistance seam welding. (6)

**UNIT-IV**

- Q8** (a) Explain with neat sketches any three types of joints used in Sheet metal. (6.5)  
 (b) Discuss the Process of bending and induced stresses in a sheet metal shop. (6)
- Q9** (a) Explain process of sheet metal spinning. List its merits and demerits. (6.5)  
 (b) List any six metals and two each of their applications used in sheet metal. (6)

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**END TERM EXAMINATION**

FIRST SEMESTER [B.TECH.] DECEMBER 2015

Paper Code: ETME-105

Subject: Manufacturing Process

Time: 3 Hours

Maximum Marks: 75

**Note:** Attempt any five questions including Q. no. 1 which is compulsory.  
Select one question from each unit.

- Q1 (a) What is case hardening and when it is required? (2.5)  
 (b) What shrinkage does the Riser take care of and where it should be located in mould? (2.5)  
 (c) Write the chemical reactions taking place in Combustion zone and reducing zone in a Cupola Furnace? (2.5)  
 (d) What are 'Cold shut' and 'Mismatch' defects in a casted products and what are the reasons for their occurrence? (2.5)  
 (e) What are the functions of 'V Block' and 'Try Square' used in fitting shop? (2.5)  
 (f) What is the principle of Resistance welding and what is the order of current in this process? (2.5)  
 (g) What is edge preparation in arc welding process and under what conditions it becomes necessary? (2.5)  
 (h) How Acetylene is stored in a cylinder and the reasons thereof? (2.5)  
 (i) What is the difference between Punching and Piercing in sheet metal? (2.5)  
 (j) What is the basic difference between Embossing and Coining Processes? (2.5)

**UNIT-I**

- Q2 (a) Discuss in detail the process of Normalizing. What properties are improved by this process? (6.5)  
 (b) Explain the following with neat sketches and their application areas  
     (i) Sweep Pattern     (ii) Multipiece pattern (6)  
 Q3 (a) Explain the process of investment casting. List its any three applications. (6.5)  
 (b) Explain the composition, salient properties and application areas of:  
     (i) Duralium     (ii) Bronze (6)

**UNIT-II**

- Q4 (a) Explain with neat sketches the process of wire drawing. (6.5)  
 (b) Discuss in detail the classification of files in fitting shop on basis of their  
     (i) shape (ii) cut of teeth (iii) finishing capabilities (6)  
 Q5 (a) Describe 'Fullering' and 'Swaging' operations in smithy. What is the main difference between them? (6.5)  
 (b) Explain the following processes used in a fitting shop-  
     (i) External Thread cutting (ii) Scraping (6)

**UNIT-III**

- Q6 (a) Discuss the process, advantages and limitations of Resistance spot Welding. (6.5)  
 (b) Discuss in detail how Gas welding process is different from Brazing. (6)  
 Q7 (a) Discuss the Process, advantages and limitations of Atomic Hydrogen Welding. (6.5)  
 (b) What is Carbon arc welding and under what conditions it is necessary? (6)

**UNIT-IV**

- Q8 (a) Discuss with neat sketches the process of Deep Drawing. (6.5)  
 (b) Explain how the powers used in powder metallurgy process. (6)  
 Q9 (a) Discuss with neat sketches the process of Spinning and stretch forming. (6.5)  
 (b) Explain (i) Sintering (ii) Compacting related to Powder Metallurgy (6)

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# END TERM EXAMINATION

FIRST SEMESTER [B.TECH] DECEMBER 2016

Paper Code: ETME 105

Subject: Manufacturing Processes

(Batch: 2013 onwards)

Time : 3 Hours

Maximum Marks : 75

Note: Attempt any five questions including Q.No. 1 which is compulsory.  
Select one question from each unit.

- Q1. Answer questions: (5x5=25)
- Describe Properties of materials: strength, elasticity, stiffness, malleability and hardness.
  - Explain in brief all the elements of gating system.
  - Compare Hot working and Cold working process.
  - Describe any five welding defects with proper nomenclature.
  - Compare TIG and MIG welding in detail. What are their applications?
  - Elaborate on any five fitting shop tools with proper diagrams.

## Unit-I

- Q2. a) What are Carbon steels? How they are classified based on % of carbon? Describe their properties & applications. (8)  
b) Elaborate on composition and properties of moulding sand. (4.5)

- Q3. a) What are permanent mould casting & centrifugal casting? Compare. (4.5)  
b) What is Pattern? What are pattern materials? Explain all types of patterns in brief. (8)

## Unit-II

- Q4. Explain any four in brief: (12.5)
- Forging defects,
  - Drop forging
  - Press forging
  - Bench work and fitting operations
  - Extrusion & its types
  - Wire drawing & swaging

## Unit-III

- Q5. a) Explain Oxyacetylene Gas welding, its equipment and field of application? (6)  
b) Compare Brazing and soldering? How they are used in modern manufacturing process? (6.5)

- Q6. a) Describe butt and percussion welding? Draw suitable diagram to elaborate. Also give its some applications. (6)  
b) Discuss Flux, its composition, properties and function? Elaborate in brief. (6.5)

## Unit-IV

- Q7. What is Powder metallurgy? Explain its all process: powder production blending, compaction, sintering. (12.5)

- Q8. a) Explain types of sheet metal operations: shearing, drawing and bending. (8)  
b) Compare embossing and coining with suitable diagram & applications. (4.5)

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## END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] NOVEMBER - DECEMBER 2017

Paper Code: ETME-105

Subject: Manufacturing Processes

Time: 3 Hours

Maximum Marks: 75

Note: Attempts all questions. Internal choice is indicated.

- Q1 Write short note on followings:- (5x5=25)  
(a) Pattern allowances.  
(b) Classification of carbon steels.  
(c) Forging defects and their remedies.  
(d) Give the necessity of flux and its composition.  
(e) Explain and differentiate embossing and coining giving their uses.
- Q2 What are alloy steels? Discuss various heat treatment processes of carbon steels. (12.5)

**OR**

Describe investment casting process with neat diagram, its uses and limitations.

- Q3 Explain various forging processes giving the tools required and their uses. (12.5)

**OR**

Describe the different tools used in fitting and thread cutting with neat diagram.

- Q4 Give the classification of the welding processes and explain submerged arc welding with neat diagram. (12.5)

**OR**

Describe different electric resistance welding processes giving their uses.

- Q5 Describe the different sheet metal work processes and tools used for them giving their limitations. (12.5)

**OR**

What is powder metallurgy? Explain the processes of pulverization, compaction and sintering. (12.5)

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# END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] DECEMBER 2017

Paper Code: ETME-107

Subject: Manufacturing Processes

Time: 3 Hours

Maximum Marks: 75

**Note:** Attempt any five questions including Q.no. 1 which is compulsory.  
Select one question from each unit.

- Q1** Write short notes on following topics: (5x5=25)
- Define manufacturing. Does manufacturing activity in a country affect the standard of living of people in that country? Explain briefly.
  - What are the various manufacturing processes? As an engineer, when would you prefer casting as a manufacturing process over other manufacturing processes?
  - Differentiate between drop forging and press forging.
  - Describe the manual flux coated electrode arc welding process. Name one major limitation of this process and describe how it may be overcome.
  - What do you understand by minimum bend radius for a sheet metal?

**UNIT-I**

- What is a mould? What are the requirements of a good mould? Describe some major advantages and limitations of the expendable mould casting processes. (8)
  - Name any three common mould materials for permanent mould casting. What metals would you recommend to be cast by this process? Give reasons. (4.5)
- Q3** (a) Distinguish between a pattern, a mould and a casing. (4.5)  
 (b) Why are allowances given on a pattern? Name any five pattern allowances and give reasons for providing them. Why is it desirable to make pattern allowances as small as possible? (8)

**UNIT-II**

- Q4** (a) What is meant by flash in impression die forging process? What purpose does it serve? (6)  
 (b) What is the use of lubricant in forging practice necessary? Name the lubricants used for hot forging and cold forging. (6.5)
- Q5** (a) Explain the following with neat diagram: (6)  
 (i) upsetting, (ii) swaging and (iii) fullering.  
 (b) Distinguish between thread cutting and tapping. (4)  
 (c) Draw a neat sketch of marking tool. (2.5)

**UNIT-III**

- What could be the reasons for preferring gas metal arc welding over shielded metal arc welding for production work? (6)
  - Briefly discuss the essential differences between arc welding and electric resistance welding. (6.5)
- Q7** (a) Discuss the different types of flames used in gas welding processes with neat sketch. (6)  
 (b) Distinguish between brazing and soldering with one application each. (6.5)

**UNIT-IV**

- Q8** (a) What do you understand by formability of a material? (4.5)  
 (b) A circular part having 80 mm diameter is to be cut from a 2 mm thick cold rolled (half hard) steel sheet by blanking operation. Determine the approximate sizes of the punch and die. (8)
- Q9** (a) Differentiate between coining and embossing with neat diagram. (5)  
 (b) Explain the process of sheet metal shearing operation done with a punch and die. What is the importance of giving proper clearance between the punch and the die? (7.5)

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# END TERM EXAMINATION

FIRST SEMESTER [B.TECH] NOVEMBER-DECEMBER 2018

Paper Code: ETME 105

Time : 3 Hours

Subject: Manufacturing Processes

Maximum Marks : 75

Note: Attempt five questions in all including Q. No. 1 which is compulsory. Select one question from each unit. Assume suitable missing data, if any.

Q1. Answer the questions:

- a) Classify carbon steel on the basis of % carbon. (10x2.5=25)
- b) Write important properties of green sand used in foundry shop.
- c) Differentiate between hot working and cold working processes.
- d) With the help of neat sketch, describe any marking tool used in fitting shop.
- e) With the help of sketch, describe all the three oxyacetylene flames.
- f) Enumerate the limitations of spot welding.
- g) Define blanking and punching processes in sheet metal work.
- h) Describe single hem and double hem and write their purpose in sheet metal joint.
- i) Define stiffness and toughness of the material.
- j) Differentiate between cold and hot isostatic pressings.

## Unit-I

- Q2. a) Write short notes on alloying metals for aluminium alloys. (6)
- b) Describe five types of pattern allowances considered in casting. (6.5)
- Q3. a) Briefly explain i) cyaniding ii) nitriding and iii) induction hardening. State their advantages and limitations. (6)
- b) Describe step by step the process of investment casting. (6.5)

## Unit-II

- Q4. a) With the help of neat sketch, describe the machine forging. (6.5)
- b) With the help of neat sketches, explain the various types of files used in fitting shop. (6)
- Q5. a) Explain with sketches, the following operations in forging:  
i) Upsetting, ii) Drawing down iii) Setting down iv) Punching  
v) Bending. (6.5)
- b) Write a short note on the following operations: i) Chipping  
ii) Grinding iii) Sawing, iv) Scrapping and v) Tapping. (6)

## Unit-III

- Q6. a) Discuss with the neat sketch, the principle of atomic hydrogen welding. (6)
- b) Discuss, with the help of neat sketch, the principle of electric arc welding. What is straight polarity and reversed polarity? (6.5)

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- Q7. a) Explain the term 'Weldability'. What are the advantages and disadvantages of welded joints over other joints? (6)
- b) Differentiate between a) TIG welding and b) MIG welding processes. (6.5)

Unit-IV

- Q8. a) Discuss the various methods available for manufacturing metal powders in powder metallurgy. (6)
- b) What are the various sheet metal operations? Discuss any four of them in brief with neat sketch. (6.5)
- Q9. a) Explain spinning and stretch forming operations and enumerate their characteristics and applications. (6)
- b) Describe briefly the various secondary operations performed on powdered metal parts. (6.5)

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## END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] DECEMBER 2013

Paper Code: ETME 107

Subject: Manufacturing Process  
(Old Syllabus)

Time : 3 Hours

Maximum Marks : 75

Note: Attempt all questions. Internal choice is indicated.

- Q1 (a) Define casting. List various types of casting.  
(b) What are the different tools used in sand casting?  
(c) What do you mean by Swaging? When Swaging is used?  
(d) List the various marking tools used in bench work and fitting.  
(e) Briefly explain the principle of arc generation in arc welding.  
(f) List the different types of welded joint.  
(g) Differentiate between oxidizing flame and carburising flame.  
(h) State the applications of sheet metal work.  
(i) Define core. Why cores are used in casting?  
(j) How do you classify welding? (2.5x10=25)
- Q2 (a) Explain the various properties of moulding sand from the stand point of sound castings. (6)  
(b) With neat sketch explain cold chamber die casting process. (6.5)
- OR**
- (a) List the merits and demerits Investment Casting. (5)  
(b) With neat sketch explain centrifugal casting process. (7.5)
- Q3 (a) Define drop forging. Explain the process of drop forging with neat sketch. (6.5)  
(b) Explain the process of tapping. (6)
- OR**
- (a) With neat sketch explain (i) Flattening (ii) Upletting. (6)  
(b) Explain the process and list of the applications of (i) Sawing (ii) Chipping operation used in fitting works. (6.5)
- Q4 (a) What are the basic differences between arc welding and submerged arc welding? List along with block diagram of these processes. (6)  
(b) Explain with neat sketch atomic hydrogen welding. Where do you process atomic hydrogen welding? (6.5)
- OR**
- (a) Explain the following resistance welding operation:- (6)  
    (i) Percussion Welding   (ii) Seam Welding.  
(b) Explain the process of Oxyacetylene welding and list the applications of the process. (6.5)
- Q5 (a) Sketch and explain (i) Embossing and (ii) Carving process. (6.5)  
(b) Write a note on metals used for sheet metal working. (6)
- OR**
- (a) Sketch and explain (i) Spinning (ii) Bending operation. (8)  
(b) How do you specify sheets used for sheet metalwork? Explain. (4.5)

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# END TERM EXAMINATION

FIRST SEMESTER [B.TECH] JANUARY - FEBRUARY 2015

Paper Code: ETME-107

Subject: Manufacturing Process

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each Unit.

- Q1 (a) Differentiate between forging and forgeability. (2.5x10=25)  
(b) What is the function of Cupola Furnace and for which material it is used?  
(c) Explain positions of Welding Joints.  
(d) Explain "Directional Solidification" in Casting.  
(e) What is the purpose of chillers?  
(f) Define Seam Joints with example.  
(g) Why sprue size reduces downwards? What is ideal shape of sprue and why?  
(h) Why cleaning of joints are important before welding?  
(i) Define Core. Why core is used in Casting?  
(j) What are the differences between embossing and coining?

## Unit-I

- Q2 (a) With neat sketch explain Goose neck die casting process with its Application. (6.5)  
(b) Explain six Casting Defects with its remedies. (6)
- Q3 (a) With neat sketch explain Elements of Gating System in Casting process. (6)  
(b) Define Mould, Core-Prints and Chaplets; also differentiate between Moulding sand and core sand. (6.5)

## Unit-II

- Q4 (a) Explain with neat sketch:-  
    (i) Fullering operation. (3)  
    (ii) Press forging operation (3)  
(b) Explain the process and application of  
    (i) Sawing, (ii) Chipping operation used in fitting works. (6.5)
- Q5 (a) Explain with neat sketch:-  
    (i) Upsetting Operation (3)  
    (ii) Wire drawing operation (3)  
(b) (i) Differentiate between die and tapping operation with diagram. (3)  
    (ii) Explain with neat sketch major tools used in fitting shop. (3.5)

## Unit-III

- Q6 (a) Explain Solid state welding with Advantages, Disadvantages and Applications. (6.5)  
(b) Explain with neat sketch different types of flames and its application. Differentiate between spot and seam weld joining process. (6)
- Q7 (a) What are the differences between arc welding and submerged arc welding process? List along with block diagram of these processes. (6.5)  
(b) What is Flux? Give its composition and properties. (6)

## Unit-IV

- Q8 (a) Explain with neat sketch:-  
    (i) Shear Spinning (ii) Embossing process. (3+3=6)  
(b) Explain with neat sketch:-  
    (i) Notching, Nibbling and coining. (3+3.5=6.5)
- Q9 (a) What are the common tools used for sheet metal work? Explain with diagram. (6)  
(b) (i) How the metal sheets are specified? (3)  
    (ii) Name various metal used for sheets and give standard specification of GI Sheets. (3.5)

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# END TERM EXAMINATION

FIRST SEMESTER [B.TECH.] DECEMBER 2016

Paper Code: ETME107

Subject: Manufacturing Processes

Time : 3 Hours

Maximum Marks :75

Note: Attempt any five questions including Q.no.1 which is compulsory.  
Select one question from each unit.

- Q1 Explain the following topics in brief and to the point: **(5x5=25)**
- (a) Classify the moulds used in casting. Describe the investment casting with neat sketch.
  - (b) Describe the operation of cupola furnace.
  - (c) Differentiate between drop forging and press forging.
  - (d) What do you understand by press work? What is the working principle of press?
  - (e) Explain soldering process. How it differs from brazing? Write the uses of both.

## UNIT-I

- Q2 Describe with neat sketch, the various operations in casting process. What is the function of core in casting? Describe the elements of gating systems with neat sketch. **(12.5)**

- Q3 What is master pattern? Describe the various kinds of patterns are in use with neat sketch. What are the allowances provided, when making a pattern? **(12.5)**

## UNIT-II

- Q4 Define metal forming process and differentiate between hot working and cold working process. Write the minimum two examples of both processes. **(12.5)**

- Q5 (a) Explain the following terms:  
(i) Fullering, (ii) Upsetting, (iii) Fitting and (iv) Tapping. **(8)**  
(b) What are the methods of forging and compare forging with casting process? **(4.5)**

## UNIT-III

- Q6 Explain the following processes:- **(12.5)**
- (a) Resistance welding.
  - (b) Types of joints.
  - (c) Properties of flux.

- Q7 What is the principle of gas welding? Explain with neat sketches the features and use of neutral, oxidizing and carburizing flames in case of oxy-acetylene gas welding. **(12.5)**

## UNIT-IV

- Q8 Describe the various processes in sheet metal working and draw a neat sketch of die and punch assembly. **(12.5)**
- Q9 Explain the following terms: **(12.5)**
- (i) spinning, (ii) bending, (iii) embossing and (iv) coining.

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## Sessional Test

B. Tech – I<sup>st</sup> Semester

Paper Code: ETME 105

Time: 90 minutes

Oct- Nov 2018

Subject: Manufacturing Process

Max. Marks: 30

Note: Question no. 1 is compulsory. Attempt any two from the rest.

Q1. Define:

- (a) Compare brazing and soldering (2.5×4)
- (b) Write down chemical equation takes place in oxy acetylene gas welding
- (c) What is straight and reverse polarity
- (d) Discuss the principle of resistance welding

Q2. (a) Explain the characteristics & uses of three basic O<sub>2</sub>-C<sub>2</sub>H<sub>2</sub> welding flame patterns. (5)

(b) Compare TIG with MIG welding and also write any four welding defects. (5)

Q 3. (a) Compare hot working and cold working process. (5)

(b) Explain in brief the various methods of hot extrusion with neat sketch (5)

Q 4. (a) Explain the term Punching, Blanking, Piercing, Embossing and coining? (5)

(b) Define powder metallurgy & explain various powder metallurgy processes. (5)

B. Tech – I<sup>st</sup> Semester

Paper Code: ETME 105

Time: 90 minutes

(Please Write your Roll No. immediately)

Roll No.....

## First Term Examination

B.Tech - I<sup>st</sup> Semester

Paper Code: ETMT 105

Time: 1 ½ Hour

September 2018

Sub: Manufacturing Process

Max. Marks : 30

Note: Q. No. 1 is compulsory. Attempt any two more questions from the rest.

Ques.1 (a) Define heat treatment. Explain the need or purpose of heat treatment process.

- (b) Write down the effects of constituent elements on cast iron.
- (c) List out the various types of pattern and pattern allowances.
- (d) Define the following:

- (i) Fatigue
- (ii) Creep
- (iii) Toughness
- (iv) Resilience
- (v) Stiffness

(2.5×4)

Ques.2 (a) Explain the different types of zones in a cupola furnace.

(6)

(b) What is the requirement of good gating system?

(4)

Ques.3 Sketch and explain the complete procedure of investment casting.

(10)

Ques.4 Explain the various casting defects with its causes and remedies.

(10)

(Please Write your Roll No. immediately)

Roll No.....

B.Tech - I<sup>st</sup> Semester  
Paper Code: ETMT 105  
Time: 1 1/2 Hour

September 2018  
Sub: Manufacturing Process  
Max. Marks : 30

Note: Q. No. 1 is compulsory. Attempt any two more questions from the rest.

- Ques.1 (a) Define heat treatment. Explain the need or purpose of heat treatment process.  
(b) Write down the effects of constituent elements on cast iron.  
(c) List out the various types of pattern and pattern allowances.  
(d) Define the following:

- (i) Fatigue
- (ii) Creep
- (iii) Toughness
- (iv) Resilience
- (v) Stiffness

N	007 Aman	039 Manvi Gambhir
	011 Ankit Suley	042 Md. Abdullah
	016 Aryan Yadav	046 Nazil Wasan
x	020 Bhavu	059 Rupal
	021 Chitrakar	061 Sakshi Raj
	026 Hardik Gupta	075 Utkarsh Raj
	032 Hemanshu	(25x4)
	035 Madhur Joshi	Mohit (6)
		Satyam Rai (4)
		Jyotirmay Deshpande (10)

- Ques.2 (a) Explain the different types of zones in a cupola furnace.

- (b) What is the requirement of good gating system?

- Ques.3 Sketch and explain the complete procedure of investment casting. (10)

- Ques.4 Explain the various casting defects with its causes and remedies. (10)

S — Ayush Pandey

426 — Akhil Rawal

429 — Kiratpal Singh

(Please write your Roll No. immediately)

Roll No.....

### Mid-Term Examination

First Semester [B.Tech.]

September & 2019

Paper Code: ETME - 105

Subject: Manufacturing Process

Time: 1 1/2 Hrs.

Max. Marks: 30

Note: Attempt Q.No. I which is compulsory and any two more questions from remaining.

Q1.

(2 x 5)

- (a). Define Core and state its functions.
- (b). What are the functions of Gating System?
- (c). Which Mechanical properties are associated with the products made of Low Carbon Steel.
- (d). What are the functions of Chills and Chaplets?
- (e). What is Master Pattern?

Q2.

- (a). What are the objectives of Heat Treatment process. How Tempering operation is performed? (6)
- (b). Design a Pattern for the Casting of size (30 x 30 x 30 cm<sup>3</sup>) (cube) considering 1% Machining allowance, 0.8% Shrinkage allowance, 1.2° Draft allowance and 0.5 % Rapping allowance. (4)

Q3.

- (a). Describe briefly about the different steps in Investment Casting. (6)
- (b). Differentiate between Hot chamber and Cold chamber Die casting. (4)

Q4.

- (a). Describe with the help of a neat sketch the working of a Cupola furnace while considering different temperature zones. (6)
- (b). Define Upsetting and Drawing down operations in forging. (4)

(Please Write your Roll No. immediately)

Roll No. 02296203618

## First Term Examination

B.Tech - I<sup>st</sup> Semester

Paper Code: ETMT 105

Time: 1 1/2 Hour

September 2018

Sub: Manufacturing Process

Max. Marks : 30

Note: Q. No. 1 is compulsory. Attempt any two more questions from the rest.

Ques.1 (a) Define heat treatment. Explain the need or purpose of heat treatment process.

(b) Write down the effects of constituent elements on cast iron.

(c) List out the various types of pattern and pattern allowances.

(d) Define the following:

- (i) Fatigue
- (ii) Creep
- (iii) Toughness
- (iv) Resilience
- (v) Stiffness

(2.5×4)

Ques.2 (a) Explain the different types of zones in a cupola furnace.

(6)

(b) What is the requirement of good gating system?

(4)

Ques.3 Sketch and explain the complete procedure of investment casting.

(10)

Ques.4 Explain the various casting defects with its causes and remedies.

(10)

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