MECHANICAL ENGINEERING DEPARTMENT
Motilal Nehru National Institute of Technology, Allahabad
MID SEMESTER EXAMINATION (2019-20 Odd Semester)
B.Tech. I Semester (Groups A, B, C, D, E)
Subject: **ME-11102/ME-1102 WORKSHOP**

TIME: 1 ½ Hour ***MAX. MARKS: 20***

Note: Attempt all questions

1. Explain briefly different types of plant layouts with their suitability of production systems. **(2 M)**
2. Define manufacturing. Classify various machining processes. **(2 M)**
3. Define and explain the following Properties of Metals **(2 M)**
   a) Creep b) Fatigue c) Ductility d) Castability
4. What is alloy steel? Why are alloying elements added to steel? **(2 M)**
5. Name the various alloys of copper and comment on their importance. **(2 M)**
6. What are common materials used for pattern making? Discuss their relative merits and demerits. **(2 M)**
7. Explain at least four different pattern allowances with their importance. **(2 M)**
8. Draw a sketch of typical green sand mould and name its parts. **(2 M)**
9. What is core? How it is made? Explain the function of chaplet? **(2 M)**
10. Write any four casting defects with their remedies. **(2 M)**

Mechanical Engineering Department
Motilal Nehru National Institute of Technology, Allahabad
Mid Semester Examination-2017
B.Tech. I[st] Semester (Group A, B, C and G2)

Workshop- ME1102

Time: **1½ Hour** Max. Marks: **20**

Note: Attempt all questions.

1. Classify manufacturing processes. Write industrial applications of each manufacturing process. [2]
2. What is Production System? Write its classification with at least one example. [2]
3. Classify Plain Carbon Steels. Write the products manufactured by each one. [2]
4. Classify ceramics. Write the industrial applications of each one. [2]
5. Draw the cross-sectional view of the green sand mold which is ready for pouring and level its various elements. [2]
6. List the six casting defects with neat sketch and also write the measures to avoid these defects. [2]
7. Define the properties of green sand mold namely Permeability, Refractoriness and Collapsibility. [2]
8. Draw the neat sketch of various types of Rolling Mills. List the products manufactured by Rolling Processes. [2]
9. Draw the neat sketch of Bulk Deformation Processes and Sheet Metalworking Processes. [2]
10. What is the difference between Direct and Indirect Extrusion and write the products manufactured by Extrusion Processes. [2]

MECHANICAL ENGINEERING DEPARTMENT
Motilal Nehru National Institute of Technology, Allahabad
MID SEMESTER EXAMINATION (2018-19 Even Semester)
B.Tech. II Semester (Groups D, E, F, G1, H1, I)
Subject: **ME-12102 WORKSHOP**

TIME: 1 ½ Hour ***MAX. MARKS: 20***

Note: Attempt all questions

1. Explain different production systems with their applications **(2 M)**
2. Classify different basic shaping processes and mention the products made through these processes. **(2 M)**
3. Write the classification of high alloy steels and their engineering applications. **(2 M)**
4. Define and explain the following Properties of Metals **(2 M)**
   a) Fatigue b) Toughness c) Malleability d) Weldability
5. Explain the composition and properties of Brass and Bronze with their applications **(2 M)**
6. Write types of patterns. Also write pattern allowances with their significance. **(2 M)**
7. What are the required properties of moulding sand? Mention their importance. **(2 M)**
8. Draw a typical green sand mould and identify different elements of it. **(2 M)**
9. Explain the function of chaplet? Write the functions of riser. **(2 M)**
10. Write five defects of casting with their remedies. **(2 M)**

Mechanical Engineering Department

Motilal Nehru National Institute of Technology Allahabad

EndSemester Examination (7.12.2018)

WORKSHOP (ME11102)

Total time: 3.00 Hrs. Max. Marks: 50

Note:All questions are compulsory. Marks are assigned in front of questions.

1. (a) Explain in detail about the properties of Metals, Ceramics, Plastic and Alloys with itsapplications. [4]

   (b) Explain the different mechanical properties of metals. Draw the stress strain diagram for Mild steel and cast iron and illustrate them. [4]

2. (a) What do you understand by Pattern, Moulds and Castings? Also explain the casting defects with neat sketch also list the remedies of the defect. [4]

   (b)Write down the composition of Green Sand along with its desired properties. Explain why it is called "Green"? [4]

3. (a) What is the difference between (a) Hot working and cold working (b) Hot rolling and cold rolling? [4]

   (b)Define Extrusion with its applications and also explain the process with neat labeled sketch. [4]

4. (a) Explain different types of Pattern and Pattern allowances with neat sketch. [4]

   (b)Draw the block diagram of lathe machine and explain the complete specifications. Briefly explain operations performed on lathe machine. [4]

5. (a) What are Unconventional Machining processes? Explain the fundamental and working principle of EDM and LBM? [4]

   (b) Classify different welding operations. Explain the process of Electric arc welding and withdiagram? Briefly explain welding defects. [4]

6. (a) Explain the advancement and support of CAD/ CAM in manufacturing sector. What are different levels of CAD/CAM? [4]

   (b)Write short note on following: [6]

   i. Brazing and soldering

   ii. Gating system

   iii. Rolling process

   iv. Mechanisms of lathe machine.

MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY

ALLAHABAD-211004

Mechanical Engineering Department

Mid semester examination-2017 Maximum Marks: 50

Time: 1.5 Hours

Subject: Workshop

Note: All questions are compulsory and carrying equal marks (10).

1. Describe the classification of manufacturing process. Give the required process in sequences to make the bolt from iron ore.

2. Draw the stress-strain diagram for mild steel with description of its each salient point.

3. What are plain carbon steels? How are they classified? Give properties and applications of each of them.

4. What are alloy steels? Why alloying is done? What are the effects of different alloying elements on mechanical properties of alloy steel?

5. Explain any five of following:

   I. Resilience
   II. Plasticity
   III. Poisson's ratio
   IV. Cast iron
   V. Stiffness
   VI. Toughness

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MECHANICAL ENGINEERING DEPARTMENT
Motilal Nehru National Institute of Technology Allahabad
Allahabad-211004 (India)

MID SEMESTER EXAM.
Work shop ME-1202

MM-30 Time 1 $\frac{1}{2}$

Note – Attempt all question

(1) Write detailed classification of manufacturing process and also give 5 examples of each process. (10)

(2) Write classification of steel based on carbon percentage, their properties and their industrial applications. (10)

(3) Write a brief note on cast iron and its applications. (5)

(4) Define and explain the following any 5 properties . (5)

1. Creep
2. Mach inability
3. Malleability
4. Toughness
5. Poissioris, ratio
6. Shear strength
7. Hardness .

Department of Mechanical Engineering
Motilal Nehru National Institute of Technology Allahabad

Mid Semester Examination – 2016

Subject: **Workshop (ME-1102)**
B. Tech. I Semester, Group A, B, C and G_2

Maximum Marks: 20

Time: 1.5 Hour

Note:

- Attempt ALL questions.
- Answers must be specific and to the point.
- Each question has equal marks.
- Provide schematic diagrams wherever required.

1. Label the names and describe the purpose of various elements of sand mould casting with schematic diagram. Also, write the composition of green sand with function of each constituent.

2. Classify and describe composition, properties and specific applications of steels.

3. Describe Stress-Strain diagram for ductile material (say Mild Steel). Also, differentiate between hot working process and cold working process.

4. Describe the 'Manufacturing'. Also, state the factors which affect the selection of materials and manufacturing processes, respectively.

5. Write short notes on ANY FOUR of the followings:

   (a) Properties of Moulding sand/ Mould

   (b) Brass.

   (c) Cast Iron.

   (d) Forging

   (e) Casting defects.

Department of Mechanical Engineering
Motilal Nehru National Institute of Technology Allahabad

End Semester Examination – 2016

Subject: **Workshop (ME-1102)**
B. Tech. I Semester, Group A, B, C and G_2

***Time:* 3 Hour** **Maximum Marks: 50**

Note:

- Attempt ALL questions.
- Answers must be specific and to the point.
- Each question carries equal marks.
- Provide schematic diagrams wherever required.

1. Classify Metal Forming processes and describe the Rolling alongwith its applications.
2. Describe advantages of Non-Ferrous metals over Ferrous metals, and describe composition, properties and applications of plain carbon steels.
3. Write specifications of a lathe machine with schematic diagram. Also, write the name of SIX different operations which can be performed on lathe machine.
4. Describe the working principle of Radial Drilling machine with schematic diagram.
5. Describe any two methods of Taper turning on lathe.
6. Classify metal joining processes and describe Electric Arc Welding.
7. A mild steel rod of diameter 200 mm and length 20 cm is to be turned at speed of 2 m/s. Calculate the spindle speed in rpm. Also, if this rod is taper turned to *1 in 50*, find the diameter of small end and half taper angle.
8. Explain, why pattern allowances are provided? Suggest, how casting diffects may be minimized.
9. Define the following properties
   (i) Hot hardness (ii) Toughness (iii) Creep (iv) Fatigue (v) Ductility
10. Write short notes on: (i) Gas flames (ii) Spot welding (iii) Welding torch (iv) Riser (v) Spot facing

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WORKSHOP (ME-1202)
MECHANICAL ENGINEERING DEPARTMENT
MNNIT ALLAHABAD

Time:3hr MM:50

: Attempt all the six question .
Questions carry equal marks.

1) Classification of manufacturing process from iron ore to finished product, give at least ten kind of process in each classification. Give all the processes from ore to final product from the point of view of manufacturing a thousand flanges per day.

2) What are the different properties of a material of steel or cast iron? What are these properties explain in details.
(a) Tensile strength, (b) Fatigue strength
Compare these properties with figure.
(c) What is toughness, hardness and malleability? Explain.

3) What are different alloy steel. What are their alloying elements? What are required properties of these alloying elements? Give required percentage of these alloying elements while making tool steel and stainless steel.

4) (a) How casting is done? Give figure and details of a casting. Explain in details.

(b) What are the requirements and defects of a steel casting and how the defects which appear after casting can be avoided and give remedies?

5) What are the different components of a lathe machine? Classify it. Give different processes which can be performed on this machine. Show these processes by figure and draw simple line diagram of machine and machining processes .What are their purpose and how they can be performed on the lathe machine?

6) (a) What are different kind of welding .what are the different kind of welds .discuss voltage and current and polarity of the input and output side of the transformer. Discuss.
(b) What are gases in gas welding? Discuss the pressure and temperature of the gases in the flames of gas welding.

OR

What are different kinds of unconventional machining methods. what is Electrical discharge machining(EDM) and its application with figure?