

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE
BRANCH: PRODUCTION

SEMESTER : VII
SESSION : MO/18

SUBJECT: PE7011 ADVANCED MANUFACTURING PROCESSES

TIME: 3 HOURS

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) What is slush casting? [2]
Q.1(b) Differentiate between squeeze casting and die casting. [4]
Q.1(c) Explain in short the ceramic mould casting processes. In what way ceramic mould casting processes is advantageous than plaster mould casting processes? [6]
- Q.2(a) Can you weld cast iron by friction stir welding process? Justify [2]
Q.2(b) What are challenges of underwater welding? [4]
Q.2(c) What are the different types of electron beam welding? Explain in short. [6]
- Q.3(a) What are advantages of rubber pad forming? [2]
Q.3(b) What is orbital forging? Explain its advantages over conventional forging process. [4]
Q.3(c) What are the different types of high energy rate forming process? Discuss in short [6]
- Q.4(a) Explain the Compaction process in Powder Metallurgy. [2]
Q.4(b) What is Hot isostatic pressing. Explain with neat diagram. [4]
Q.4(c) Explain in brief the Sintering process in Powder Metallurgy. [6]
- Q.5(a) What are the basic steps for Plastic manufacturing? [2]
Q.5(b) Illustrate Extrusion Process with neat diagram. [4]
Q.5(c) Explain briefly the Injection Molded components with diagram. [6]
- Q.6(a) Explain Micro-Electro-Mechanical Systems (MEMS). [2]
Q.6(b) Explain briefly Silicon Wafer Process. [4]
Q.6(c) Explain briefly Photolithography process. [6]
- Q.7(a) What are the different micro machining processes? [2]
Q.7(b) What are the procedures of Surface Micromachining? [4]
Q.7(c) Explain briefly LIGA process. [6]

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