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

CLASS: BE **SEMESTER : VII**
BRANCH: PROD. **SESSION : MO/19**

SUBJECT: PE7011 ADVANCED MANUFACTURING PROCESSES

TIME: 3:00 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.

Q.1(a)	What are amorphous metals?	[2]
Q.1(b)	Differentiate between squeeze casting and die casting.	[4]
Q.1(c)	Discuss the plaster mould casting process. In what way it is preferable over sand casting? What is the main limitation of this process?	[6]
Q.2(a)	What is hyperbaric welding process?	[2]
Q.2(b)	What are challenges of underwater welding?	[4]
Q.2(c)	With a neat schematic diagram explain the basic principles of Electron Beam Welding process.	[6]
Q.3(a)	What is Orbital Forging?	[2]
Q.3(b)	What is Rubber forming? Explain with neat sketches.	[4]
Q.3(c)	With a neat schematic diagram explain the basic principles of Isothermal forming process.	[6]
Q.4(a)	What is compaction process in powder metallurgy?	[2]
Q.4(b)	What are the methods of Powder Production? Explain briefly	[4]
Q.4(c)	What is Atomization process? Explain all types of atomization Process.	[6]
Q.5(a)	Name the parts made by rotational molding.	[2]
Q.5(b)	What is Injection molding process in plastic manufacturing? Explain briefly	[4]
Q.5(c)	With a neat schematic diagram explain the basic principles of thermoforming process.	[6]
Q.6(a)	What is Micro-Electro-Mechanical Systems, or MEMS?	[2]
Q.6(b)	Explain with a block diagram the components of a microsystem.	[4]
Q.6(c)	Explain briefly bulk micromachining.	[6]
Q.7(a)	Describe the role of quantum physics in the design of MEMS and Microsystems.	[2]
Q.7(b)	Illustrate lithography process and discuss its applications.	[4]
Q.7(c)	Explain the LIGA micro fabrication process.	[6]

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