

Duration: 3 Hours

- 1) First Question (Q.1) is Compulsory.
- 2) Attempt any 3 questions from the remaining 5 (Q.2 - Q.6) questions.
- 3) Figures to the right indicate full marks
- 4) Proportionate and labelled free-hand sketches would do

**Q. 1** Solve any **Four out of Six.**

**20**

- a) Differentiate between Hot working and Cold working.
- b) Discuss the different types of flames in gas welding.
- c) Explain gear hobbing process.
- d) Explain Internet of Things.
- e) Discuss electric discharge machining.
- f) Classify Production Processes.

**Q. 2 a)** In a cutting test with 0.3mm flank wear as tool failure criterion, a tool life of 10 min was obtained at a cutting velocity of 20 m/min taking tool life exponent as 0.25, tool life in min at 40 m/min find cutting velocity. **08**

**b)** Draw and explain plunger type injection moulding process with its advantages, Limitations and applications. **12**

**Q. 3 a)** Explain working, advantages and limitations of laser beam machining. **10**

**b)** Draw and explain significance of various elements of gating system in sand casting. **10**

**Q. 4 a)** Draw and explain in brief the various welding defects their causes and remedies. **10**

**b)** Draw and explain various operations perform on lathe machine. **10**

**Q. 5 a)** Differentiate between TIG and MIG welding. **10**

**b)** Draw and explain in brief the various rolling defects their causes and remedies. **10**

**Q. 6** Write short notes on **(Any four)** **20**

- a) Various pattern allowances.
- b) Various steps involved in powder metallurgy.
- c) Knee type horizontal milling machine.
- d) Open die and Closed die forging.
- e) Investment Casting.
- f) Cloud manufacturing.

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