Total No. of Questions—10] [Total No. of Printed Pages—4

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S.E. (Mechanical) (I Sem.) EXAMINATION, 2009

MANUFACTURING PROCESSES

(2008 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer *three* questions from Section I and *three* questions from Section II.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

SECTION I

1. (*a*) What is Gating System ? Why is it used in castings ? Explain with neat sketch. [8]

(*b*) Explain Investment casting in detail. What are its advantages ? [8]

2. (*a*) Explain in detail forming process. What is vacuum forming ? [8]

(*b*) Explain Direct and Indirect Extrusion process with proper sketches. [8]

3. (*a*) What is surface preparation in welding ? What is its significance ? How is it done ? [6]

(*b*) Discuss and compare welding and soldering and brazing in detail. [10]

P.T.O.

4. Write short notes on any *three* : 18

(*a*) Classification of adhesives

(*b*) Gas welding flames

(*c*) Shot peening

(*d*) Pattern materials

(*e*) Continuous castings.

SECTION II

5. (*a*) Draw a neat sketch of tailstock and name the parts. [6]

(*b*) List different accessories used on lathe and state the purpose of each one. [6]

(*c*) Name the advantages of using a 'taper turning' attachment. [6]

Or

6. (*a*) Explain with sketch 'thread cutting operation'. [6]

(*b*) Name different workholding devices used on lathe and state their typical applications. [6]

(*c*) A job of 55 mm diameter is to be reduced to 35 mm, upto 100 mm length. Feed rate selected 0.2 mm/rev. and the rotational speed of machine is 400 r.p.m. Find the machining time required for this reduction if the depth of cut is 1.5 mm. [6]

7. (*a*) Explain with the help of diagram the following milling operations : [6]

(*i*) Form milling

(*ii*) Plain milling.

(*b*) Calculate compound indexing for 87 divisions. The hole circles available are : [5]

Plate I :	15,	16,	17,	18,	19,	20
Plate II :	21,	23,	27,	29,	31,	33
Plate III :	37,	39,	41,	43,	47,	49.

(*c*) Differentiate between up-milling and down-milling. [5]

Or

8. (*a*) Sketch and explain the following drilling and allied operations : [8]

(*i*) Reaming

(*ii*) Counterboring

(*iii*) Countersinking

(*iv*) Spot facing.

(*b*) Sketch and explain Boring machine principle components. [8]

9. (*a*) Explain the following with neat sketches briefly : [8]

(*i*) Honing

(*ii*) Lapping

(*iii*) Buffing

(*iv*) Burnishing.

(*b*) Describe the principle, construction and working of centreless grinding. [8]

Or

10. (*a*) The following letters are printed on new grinding wheel : [5]

W–C–500–H–4–V–17

Describe the meaning of five letters (except first and last letters) mentioned in the above specification of grinding wheel.

(*b*) What do you understand from 'Grain', 'Grit' and 'Structure' of a grinding wheel ? Explain. [6]

(*c*) Discuss the various types of bonding materials used for making grinding wheels. [5]