Total No. of Questions—12] [Total No. of Printed Pages—4

[3862]-115

S.E. (Mech.) (First Semester) EXAMINATION, 2010

MANUFACTURING PROCESSES

(2008 PATTERN)

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 books.

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

(*iv*) Assume suitable data, if necessary.

(*v*) Use of logarithmic tables, slide rules, Mollier charts, electronic pocket calculator and steam table is allowed.

SECTION I

UNIT I

1. (*a*) Explain pattern making allowances in detail. [6]

(*b*) Describe centrifugal casting process with suitable sketch and also explain its various types. [6]

(*c*) Draw only a neat sketch of gating system and show the following elements on it (any *three*) : [6]

(*i*) Pouring basin

(*ii*) Sprue

(*iii*) Riser.

Or

2. (*a*) Explain in brief shell moulding process. [6]

(*b*) Explain the following characteristics of good moulding sand : [6]

(*i*) Permeability

(*ii*) Thermal stability

(*iii*) Porosity.

P.T.O.

(c) Explain the following defects in casting process with their causes and remedies : [6]

(i) Hot tears

(ii) Mismatch.

UNIT II

3. (a) What is stretch forming ? How is it done and what are its advantages ? [5]

(b) Write down difference between Hot working and Cold working. [5]

(c) Write a short note on Roll Forging. [6]

Or

4. (a) Explain forward extrusion process. [4]

(b) Explain any *two* : [6]

(i) Wire drawing

(ii) Spinning

(iii) Shot peening.

(c) Explain drop forging process with suitable sketch. [6]

UNIT III

5. (a) Explain submerged Arc welding process with a suitable sketch. [6]

(b) Describe Arc shielding. [4]

(c) Explain Forehand welding and Backhand welding technique. [6]

Or

6. (a) Explain principle of resistance welding and its applications. [6]

(b) Explain any *two* : [6]

(i) GTAW

(ii) GMAW

(iii) FCAW.

(c) Differentiate : [4]

(i) Soldering

(ii) Brazing.

SECTION II

UNIT IV

7. (*a*) Describe with neat sketch : [8]

(*i*) Apron mechanism of a Lathe.

(*ii*) Geometry of single point cutting tool.

(*b*) Explain the method of taper turning using tailstock setover. [4]

(*c*) Explain the following Lathe operations with sketch (any *three*) : [6]

(*i*) Chamfering

(*ii*) Knurling

(*iii*) Grooving

(*iv*) Threading.

Or

8. (*a*) Calculate machining time for a workpiece 0 and ϕ 90 mm diameter and 130 mm length turned in 2 passes. If the approach length is 12 mm and over travel is 5 mm. Given cutting speed = 30 m/min and feed 0.3 mm/rev. [6]

(*b*) List the various Lathe M/c accessories and explain any *two* in detail. [6]

(*c*) Explain with neat sketch Lathe setup for thread cutting operation. [6]

UNIT V

9. (*a*) Differentiate between upmilling and downmilling. [4]

(*b*) Explain with neat sketch working mechanism knee type milling machine. [6]

(*c*) Explain milling cutter geometry. [6]

Or

10. (*a*) A hole of 30 mm dia. and 75 mm depth is to be drilled. The suggested feed 1.3 mm per rev. and the cutting speed 62 m/mim. Assuming tool approach and tool overtravel as 6 mm, calculate : [6]

(*i*) Spindle rpm

(*ii*) Feed, speed

(*iii*) Cutting time.

(*b*) Write short notes on : [6]

(*i*) Radial Drilling M/c

(*ii*) Horizontal Milling M/c.

(*c*) It is required to divide the periphery of a job into 28 equal divisions. Find the indexing arrangement. [4]

UNIT VI

11. (*a*) Differentiate between Honing and Lapping. [6]

(*b*) Explain any *two* : [4]

(*i*) Buffing

(*ii*) Superfinishing

(*iii*) Dressing.

(*c*) Explain the meaning of grinding wheel signature :

26–C–60–M–7–V–28. [6]

Or

12. (*a*) Explain centreless grinding operation. [6]

(*b*) Describe various type of surface grinders with simple sketches. [6]

(*c*) What are the properties required for a good abrasive ? [4]