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[4757]-116

S.E. (Mechanical/Automobile) (First Semester) EXAMINATION, 2015

MANUFACTURING PROCESSES

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) Solve Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6 from Section I, Q. No. 7 or Q. No. 8, Q. No. 9 or Q. No. 10, Q. No. 11 or Q. No. 12 from Section II.

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

(iii) Figures to the right indicate full marks.

(iv) Neat diagrams must be drawn wherever necessary.

(v) Use of non-programmable electronic pocket calculator is allowed.

(vi) Assume suitable data, if necessary.

SECTION I

1. (a) Explain investment casting along with advantages and limitations. [8]

(b) Explain shell moulding. State the advantages and limitations of the process. [8]

P.T.O.

Or

2. (a) Sketch and explain different types of patterns. [8]
- (b) Explain the construction and working of hot chamber die casting process. State the advantages and limitations of the process. [8]
3. (a) Explain the different types of forging defects with reference to causes and remedies. [8]
- (b) Sketch and explain types of rolling mills. [8]

Or

4. (a) Describe with neat sketches the operation of wire drawing and tube drawing. [8]
- (b) With sketch explain hot spinning process. Advantages and limitations. [8]
5. (a) With neat diagram, explain resistance welding process. State types, advantages and limitations of the process. [10]
- (b) Sketch and explain different types of flames used in gas welding. [8]

Or

6. (a) Compare brazing, soldering and braze welding processes. [10]
- (b) With sketch explain Submerged Arc welding process. State advantages and limitations. [8]

SECTION II

7. (a) Explain all geared headstock of lathe with sketch. State advantages and limitations. [8]
- (b) Explain with diagram four lathe accessories. [10]

Or

8. (a) Explain with diagram simple gear train and compound gear train. [8]
- (b) Calculate the machining time required for 3 passes while reducing 65 mm diameter shaft to 55 mm diameter for a length of 1200 mm with depth of cut of 2 mm for rough cut and 1 mm for finish cut. [10]

Given :

- (i) Cutting speed = 25 m/min
- (ii) Feed = 0.5 mm/rev
- (iii) Approach length = 5 mm
- (iv) Overrun length = 5 mm
- (v) Number of passes = 3 (2 rough cut + 1 finish cut)
9. (a) State types of Milling machines and explain any *one* with sketch. [8]
- (b) Explain with diagram Universal dividing head. [8]

Or

10. (a) Explain with diagram four drilling machine operations. [8]
- (b) Calculate the speed and machining time required for producing 10 hole on an M.S. plate of 18 mm thickness with the following data : [8]
- (i) Drill diameter = 20 mm
- (ii) Cutting speed = 25 m/min
- (iii) Feed = 0.15 mm/rev.

11. (a) Explain procedure of mounting grinding wheel. [8]
- (b) Outline various factors that influence the selection of grinding wheel. Explain the meaning of any *four* letters mentioned in the specification printed on a grinding wheel. [8]

Or

12. (a) Explain the process of Thread grinding. [8]
- (b) Distinguish between honing and lapping process with sketch. [8]