KUMARAGURU
college of technology
character is life

Register Number: ……

B.E. DEGREE EXAMINATIONS: APRIL 2015

(Regulation 2009)

Seventh Semester

MECHANICAL ENGINEERING

MEC132: Process Planning and Cost Estimation

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

Answer all Questions

PART A (10 x 1 = 10 Marks)

1) The factors affecting for process planning are

a) Volume of production b) Design c) Machine d) All the above

2) The basic expert structure is

a) Knowledge engineer b) Knowledge base c) Interference engine d) All the above

3) Ergonomics implies 'Fitting the job to the _____.

a) Worker b) Machine c)Store d)Correct Position

4) In Ergonomics 'Nomos' means _____

a) Natural Laws b) Human Law c) Ethics d)Moral

5) Break even analysis should be used to find _____

a) Effective Worker b) Cheaper Process c) Machines d) Cheaper Product

6) Market price is the sum of selling price and_____

a) Discount b) Profit c) Expenses d) Total Cost

7) _____include oils, general tools, greases, sand papers, coolants, cotton waste etc

a) Indirect Material Cost b) Direct Material Cost

c) Indirect Expenses d) Direct Expenses

8) Cost of workers operating lathes, milling machines or welders, or assemblers in assembly shop.

a) Indirect Labour Cost b) Direct Labour Cost c) Indirect Expenses d) Direct Expenses

9) Direct material cost + Direct labour cost + Direct expenses=

a) Factory Cost b) Prime Cost c) Office Cost d) Total Cost

10) Estimation is done

a) Before the Component Manufacture b) After the Component is Manufactured

c) During the Component Manufacture d) At any time of the Component Manufacture

PART B (10 x 2 = 20 Marks)

11. What are the functions of process planning?
12. Define line balancing.
13. What is meant by ergonomics?
14. Define Man-Machine system
15. What are the limitations of break-even analysis?
16. State different types of cost to be considered while estimating total cost of a product?
17. Define Costing
18. What do you understand by estimating? Give its types
19. What is direct labour cost?
20. A manufacturing sector produces 5000 machines per year. If the total on costs during that year are Rs.2,00,000/-, calculate the overhead cost for each machine.

PART C (5 x 14 = 70 Marks)

21. a) Discuss various process planning activities in detail.

(OR)

b) Explain the factors should be considered for process and equipment selection?

22. a) Explain in details work place design.

(OR)

b) Discuss on anthropometry.

23. a) (i) what are different classifications of cost? Explain. (10)

(ii) Differentiate between estimation and costing. (4)

(OR)

b) The following information is available for two machines:

	Item	*Capstan Lathe*	*Automatic (Single spindle)*
(i)	Tooling cost	Rs. 300	Rs. 300
(ii)	Cost of cams	–	Rs. 1500
(iii)	Material cost per piece	Rs. 2.50	Rs. 2.50
(iv)	Operation labour cost	Rs. 5 per hour	Rs. 2 per hour
(v)	Cycle time per piece	5 min.	1 min.
(vi)	Setting up labour cost	Rs. 20 per hr.	Rs. 20 per hr.
(vii)	Setting up time	1 hr.	8 hr.
(viii)	Machine over heads (setting and operation)	300% of (iv)	1000% of (iv)

Find the break-even quantity for a component which can be produced on either the capstan lathe or the single spindle automatic.

24. a) Explain different methods of estimating.

(OR)

b) Discuss on ladder of cost.

25. a) The following figure (Fig. 25.1) shows a "lathe stock". Estimate the weight and cost of material if C.I. weighs 7.787 gm/cm^3 and material cost is 11.45 kg.

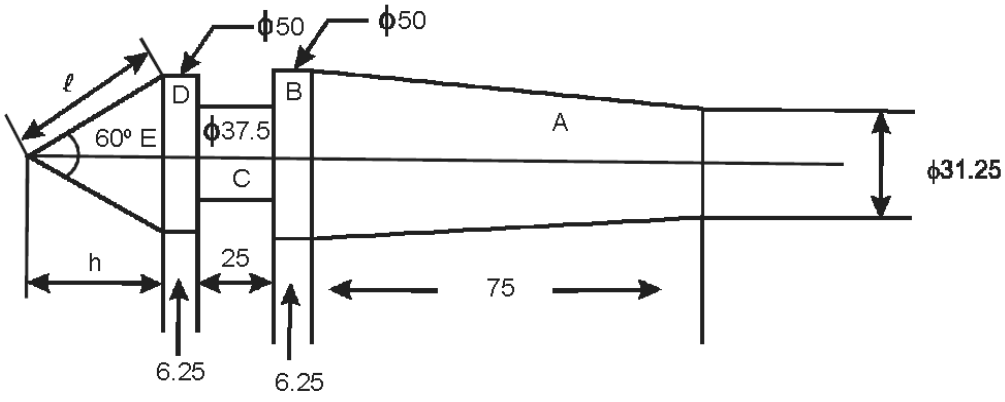

Fig. 25.1 Lathe Stock

(OR)

b) From the records of an oil mill, the following data are available,

(i) Raw materials

Opening stock = Rs. 1,40,000

Closing stock = Rs. 1,00,000

Total purchases during the year = Rs. 2,00,000

(i) Finished goods

Opening stock = Rs. 20,000

Closing stock = Rs. 30,000

Sales = Rs. 6,00,000

(iii) Direct wages = Rs. 1,00,000

(iv) Factory expenses = Rs. 1,00,000

(v) Non-manufacturing expenses = Rs. 85,500

Find out what price should be quoted for a product involving an expenditure of Rs. 35,000 in material and Rs. 45,000 wages. Factory expenses to labour cost is 100%.

****