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BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN MECHANICAL ENGINEERING
INDUSTRIAL ENGINEERING ESTIMATING AND COSTING
FIFTH SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. What are objectives of work study?
2. Draw a two hand process chart for assembling of a bolt and nut.
3. In a working sampling study a total of 50 observations are made on milling worker out of which 45 working observations are recorded. The time duration is 8 hours. Determine standard time of worker
4. What is Six Sigma? Briefly explain
5. Write various reasons for the process being out of control
6. Define Estimation? Why it is necessary for product?
7. What do you understand by depreciation?
8. Write the formula for finding the volume of (a) Cone (b) Circular ring and (c) Frustum of Pyramid?
9. A C.I rectangular block of 10cm x 3 cm is required to be shaped to produce the thickness from 1.5 cm to 1.3 cm in one cut. Determine the time required for shaping, if cutting speed is 20m/min and feed 0.2cm/stroke and the cutting time ratio is 3:5
10. How the size of stock is determined in forging?

PART - B (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Explain a man machine chart with an example
12. What are the constituents of standard time? Define each terms involved in computing standard time by high-lighting the allowances.

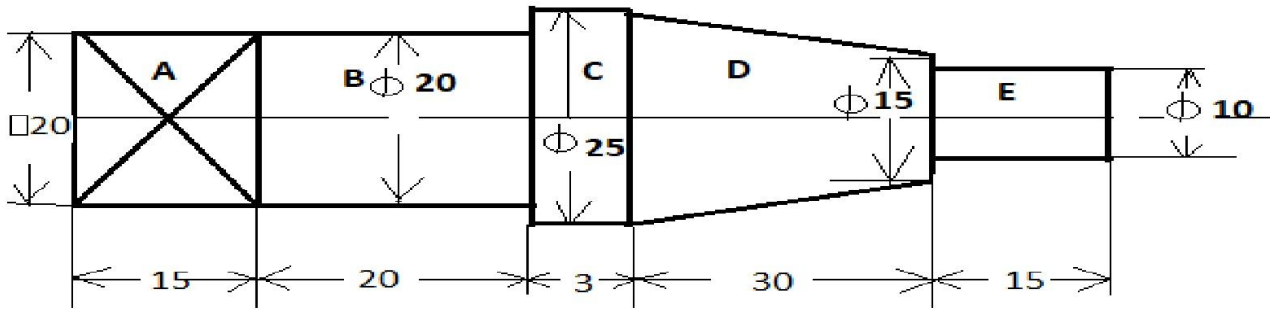
13A. Explain the use of Templates and Models as recording techniques in method study?

B. What do you mean by work sampling? What are its applications.

14. The inspection result of a sheet metal part produced by drop hammer is given below. Compute the following and discuss the result. (a). P Chart and (b) 100- P chart

Production order number	1	2	3	4	5	6	7	8	9	10	11	12
Lot size	250	250	250	250	250	250	250	250	250	250	250	250
No of defective	25	15	20	15	41	0	25	31	30	10	8	16

15. Calculate the cost of brass casting shown in the fig. Density of brass may be taken as 8.6gm/cc. The cost of brass material is Rs.60 per kg. All dimensions are in mm.



Fig

16. Find the time for surface grinding a M.S. surface 80 cm long and 30 cm wide on a horizontal surface grinding machine with a segmental grinding wheel. The diameter of wheel is 40 cm and it runs at maximum peripheral speed of 1500 m/min. The work table moves with a feed of 2.5 cm/ rev of wheel. The desired thickness of stock is removed in 40 passes of the job below the wheel

17. Estimate the welding cost for butt welding two mild steel plates each 300 mm x 200 mm x 4 mm. Assume the following data: Consumption of oxygen:0.55m^3 /hr; Rate of oxygen: Rs.30/ m^3 ; Consumption of acetylene: 0.27m^3 /hr; Rate of acetylene: Rs.150 / m^3 ; Welding time per meter of weld = 20 min; Length of filler rod consumed: 3.4 m / m of welding; Filler rod diameter: 3 mm; Filler material lost during welding=20%; Density of filler rod : 7.2gm / c.c Cost of filler rod: Rs.45 / kg. Welding is done on both sides

18A. Determine the volume of solid of revolution of circular fillet about X-X axis at a distance of R from C.G

B. How do you calculate net weight and grass weight of the given product?

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