Total No. of printed pages = 11

Me-602/DE&C/6th Sem/2018/J/A

DRAWING ESIMATING AND COSTING

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Assume any missing dimension wherever necessary.

PART – A

Marks – 25

Answer *all* questions.

1. Choose the correct answer from the following : $1 \times 10 = 10$

   (i) Selling price of a product, manufactured in a factory, is determined by the sum of

   (a) Factory cost and profit

   (b) Direct cost and profit

   (c) Production cost and profit

   (d) Gross cost and profit

[Turn over

(ii) Overhead cost is the total of

(a) Indirect and direct costs

(b) All direct costs

(c) All indirect costs

(d) All specific costs

(iii) Wages paid to a labour who was engaged in production activities can be termed as

(a) Indirect cost (b) Direct cost

(c) Sunk cost (d) Imputed cost

(iv) Depreciation of plant and machinery is a part of

(a) Factory overhead

(b) Selling overhead

(c) Distribution overhead

(d) Administration overhead

(v) Depreciation is

(a) An income (b) An asset

(c) A loss (d) A liability

(vi) Direct cost of a product, manufactured in a factory, is determined by the sum of

(a) Direct material, direct expenses and indirect labour

(b) Direct material, direct expenses and direct labour

(c) Direct material, indirect expenses and indirect labour

(d) Indirect material, direct expenses and direct labour

(vii) Under the diminishing balance method depreciation

(a) Increases every year

(b) Remain constant every year

(c) Decreases every year

(d) None of them

(viii) Documents, which contains information about used material sequence, detail and quantity of raw material is classified as

(a) bill of materials

(b) bill of sequence

(c) bill of detail

(d) bill of raw materials

(ix) Element/s of cost of a product is :

(a) Material only

(b) Labour only

(c) Expenses only

(d) Material, labour and expenses

(x) Fixed cost is a cost :

(a) Which changes in total in proportion to changes in output

(b) Which is partly fixed and partly variable in relation to output

(c) Which do not change in total during a given period despise changes in output

(d) Which remains same for each unit of output

2. Fill in the blanks with appropriate words : $1 \times 10 = 10$

(i) The process of cutting internal threads in drilled holes is known as _____.

(ii) The cutting speed for turning a bar of 5 cm dia, 10 cm length is (assume the rpm as 200) _____.

(iii) The rate of depreciation is estimated taking into account the interest on the accumulated fund in _____ method.

(iv) The depth of cut is the difference between the radius of the bar _____ and _____ taking the cut.

(v) In _____ welding, the parts to be welded are raised to the fusion temperature and then allowed to solidify without the application of pressure.

(vi) _____ is the process of beating the metal for giving it concave shape.

(vii) The process of folding the edges is known as _____.

(viii) _____ method provides for depreciation by means of equal periodic chares over the assumed life of the asset.

(ix) The main object of providing depreciation to calculate _____.

(x) Cost of preparing drawings for the manufacture of a particular product is _____.

3. State true or false : $1 \times 5 = 5$

(i) Factory cost is the sum of prime cost and factory overheads.

(ii) Turner is a direct labour.

(iii) The density of cast iron is less than the density of wrought iron.

(iv) Cutting speed can be defined as the distance that the tool travels along the work or work travels along the tool for each revolution of the work or the tool.

(v) Hollowing is the process of beating the metal for giving it convex shape.

PART – B

Answer Q. No. 6 and any *two* from the rest.

1. (a) Explain the terms : prime cost, factory cost, total cost and selling price. Show the relationship between various components of cost with the help of a block diagram. 3+2=5

   (b) A factory is producing 1000 high tensile fasteners per hour on a machine. The material cost is Rs. 375, labour cost is Rs. 245 and direct expense is Rs. 80. The factory on cost is 150 percent of the total labour cost and office on cost is 30 percent of the factory cost. If the selling price of each fastener is Rs. 1.30, calculate whether there is loss or gain and by what amount ? 10

2. (a) Give the name of various methods of calculating depreciation and explain any one of them. 2+3=5

   (b) A lathe is purchased for Rs. 8,00,000 and the assumed useful life is 10 years and scrap value Rs. 80,000. If the depreciation is charged by Diminishing Balance method, calculate the percentage by which value of the lathe is reducing every year and depreciation fund after 2 years. 10

3. (a) What do you mean by mensuration ? Give the name of various methods of calculating area of irregular figures and explain any one of them. 1+2+2=5

(b) Determine the cost of brass casting shown in the figure-1. Density of brass may be taken as 8·6 gm/cc and cost may be taken as Rs. 40 per kg. All dimensions are in mm. 10

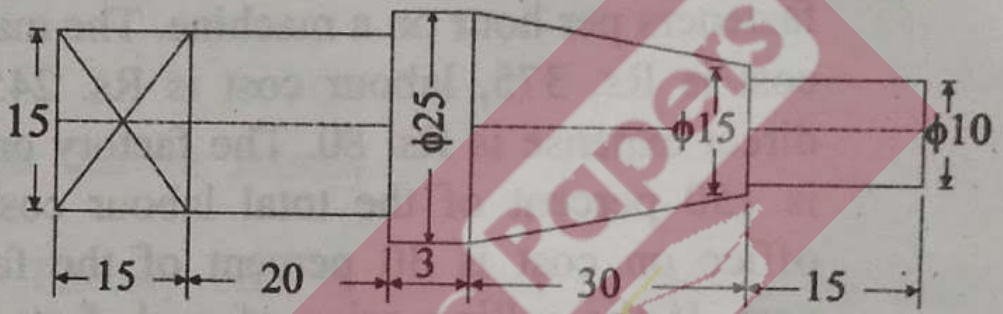

Fig. 1

4. (a) Explain the terms which are generally used in connection with different machining operations. 5

(b) A mild steel bar 100 mm long and 38 mm in diameter is turned to 35 mm dia. and was again turned to a diameter of 32 mm over a length of 40 mm as shown in the Fig. 2. The bar was machined at both the ends to give a chamfer of 45°×5 mm after facing. Calculate the machining time. Assume cutting speed of 60 m/min and feed 0.4 mm/rev. The depth of cut is not to exceed 3 mm in any operation. 10

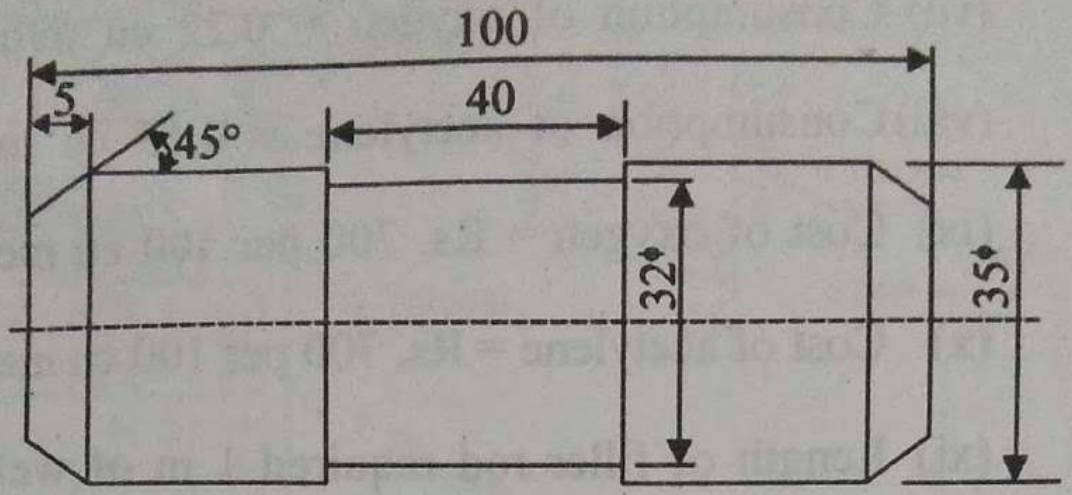

Fig. 2

(All dimensions are in mm)

5. 4 (four) numbers of 40 mm thick mild steel plates of size 50 cm × 50 cm are to be welded as shown in figure 3 by gas welding to form a plate of 100 cm × 100 cm. Find the cost of material to fabricate the plate by assuming the following data : 15

(i) Welding is to be done from both sides

(ii) Filler metal lost during welding = 20%

(iii) Filler rod diameter = 3 mm

(iv) Cost of filler rod = Rs. 15/kg

(v) Density of filler material (M.S.) = 7.87 gms/cc

(vi) Welding time/m of weld = 16 minutes

(vii) Consumption of oxygen = 0.22 cu m/hr

(viii) Consumption of acetylene = 0.15 cu m/hr

(ix) Cost of oxygen = Rs. 700 per 100 cu meters

(x) Cost of acetylene = Rs. 700 per 100 cu meters

(xi) Length of filler rod required 1 m of weld = 2.8 m

(xii) Cost of M.S. plate = Rs. 30/kg

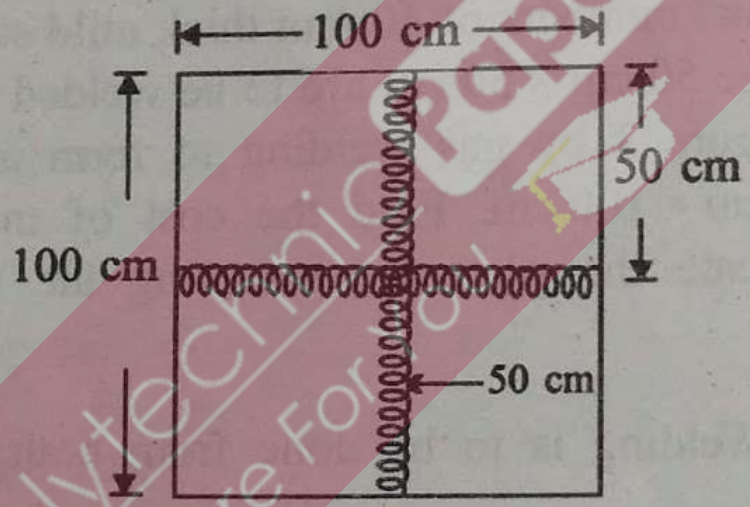

Fig. 3

6. Details of various parts of a Stop Valve are shown in fig. 4. Draw the following view of the valve with all parts assembled together : 10+5=15

(i) Sectional front view

(ii) Make a bill of material for the assembly.

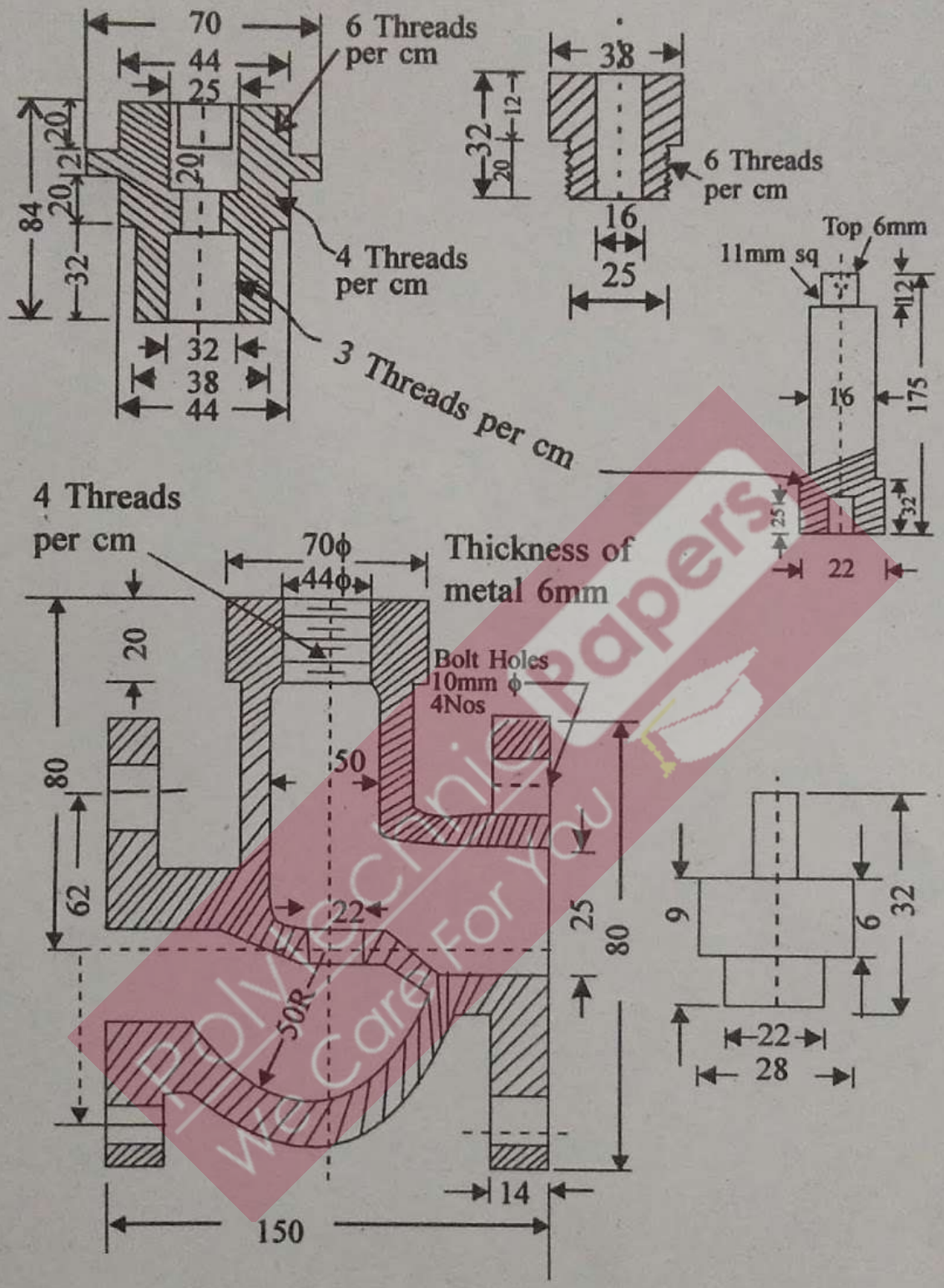

Fig. 4

All dimensions are in mm