

B. E. PRINTING ENGINEERING THIRD YEAR SECOND SEMESTER, 2017

ESTIMATING AND COSTING

Time : Three hours

Full Marks : 100

Answer *question no. 7* and any *two* from each group.

GROUP - A

- 1.a) Make a distinction between cost estimating and price estimating procedure. 6
b) What are the basic principles for classification of the cost? In each classification there are various segments. Explain each segment. 6
c) Which cost areas are considered during estimating? How they are calculated? 2+6
- 2.a) For convenience of estimating a job is broken into several parts. Elaborate it citing suitable example for different printing processes. 10
b) Design an estimate sheet. 10
- 3.a) What do you understand by International series paper? Mention their specific applications in printing industry. 3+3=6
b) What is production planning? How is it related with estimating? 2+4=6
c) What are the basic functions that a MIS performs? How a MIS is developed? 2+6=8

GROUP - B

- 4.a) Find the ream weight of 70 gsm maplitho paper of imperial size. 3
b) Find the gsm of 8.4 kg/ream of royal size. 3
c) Find the gross weight of 350 gsm duplex board of 76 x 102 cms. 2

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d) A book consisting of 176 pages excluding cover of demy octavo size is to be printed in 2 colours (coverage with cyan – 50% & black – 50%) in sheet-fed offset process. The number of copies to be printed is 1,500 copies. 80 gsm of super calendar paper in double demy size is to be used for text. Cover is to be printed in 4 colours on 190 gsm indian art paper of double demy size on one side in sheet-fed offset.

Consider the paper wastage is 1.25% per colour and also consider the ink wastage is 1.4% per colour.

Find the quantity of ink and paper to be consumed for printing the book. $8+4=12$

5. A Magazine consisting of 72 pages excluding cover of demy quarto size is to be printed in 4 colours in gravure process of 1,75,000 copies.

Paper to be used is 80 gsm foreign art paper of double demy size web, cover to be printed in 4 colours in 120 gsm foreign art paper of double demy size web on both sides in gravure.

Also consider the following informations :

Paper price : Rs. 78,000/ton

Ink price : Rs. 320/kg

Paper wastage : 1.15% per colour

Ink wastage : 1.30% per colour

Film and imposition cost/forme of 8 pages:

Rs. 360 per colour

Cylinder processing cost of 8 pages :

Rs. 2,400 per colour per forme

Impression cost : Rs. 165/thousand/colour/forme.

Finishing and binding charges : Rs. 1.50 per copy.

Find out the per copy cost of Magazine.

6. Estimate the cost of the book to be printed in offset process taking into consideration the specification and data given below:

No. of copies : 1,100

Size of the book after finishing : 22 x 27 cms.

No. of pages : 144 excluding cover

Composing area : 18 x 22 cms.

96 pages -- printed in 1-colour line and sketches.

32 pages - printed in 2-colour line and halftone

16 pages - printed in 4-colour line and halftone

Text paper used : 70 gsm of super calendar paper and double medium size.

Cover paper used : 190 gsm of Indian art board and double medium size.

Paper price : Super calendar paper – Rs. 62,000/ton

Indian art board – Rs. 70,000/ton

Film processing cost :

1 colour line text and sketches @ Rs. 0.25/sq. cm.

2 colour line and halftone @ Rs. 0.50/sq. cm.

4 colour line and halftone @ Rs. 1.05/sq. cm.

Imposition cost/forme of 8 pages :

Rs. 130 for 1 colour

Rs. 200 for 2 colours

Rs. 375 for 4 colours

Plate processing cost/forme of 8 pages :

Rs. 170 for 1 colour

Rs. 180/colour for 2 colours

Rs. 190/colour for 4 colours

Impression cost : Rs. 150/thousand/colour/forme

Cover printing cost : Rs. 5,800/- excluding paper cost

Finishing and binding charges : Rs. 1.60 per copy

Paper wastage : 1.30% per colour

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7. Find the Composite Machine Hour Rate (CMHR) of M/C - 1 (works in two shifts) from the information given below.

M/C - 1		
Machine value	Rs. 90,00,000/-	
Manpower (in one shift)	No.	Rs.(p.m.)
Printer	1	16,000/-
Asst. printer	1	13,000/-
Feeder man	1	10,000/-
Ink man	1	10,000/-

Salary of supervisor @ Rs. 20,000/shift/p.m.

Cost of exclusive direct consumables :

Cost of Rubber blankets @ Rs. 2,600/- each to last for 42 lakh impressions. - 2 Nos.

Re-copperising cost @ Rs. 2,800/- each to last for 5 years in single shift working - 5 Nos.

Other cost of exclusive direct consumables – Rs. 20,000 /-

Power consumption	- 18 KW
Power cost / unit	- Rs. 8.50/-
Capacity utilization	- 80%
Working hours / shift	- 8 hours
No. of working days per year	- 300 days
Average output per shift	- 42,000 impressions

Other benefits to working staff :

Bonus	- 8.33%
E.S.I.	- 5%
P.F. contribution	- 8.33%

Gratuity	- 4%
Leave wage	- 3%

Other charges :

Bank interest on machine value	- 11%
Insurance	- 1%
Depreciation (on one shift basis)	- 11%

Other fixed annual expenditures :

a) Salaries on indirect labour, office staff including bonus, P.F., gratuity etc.	- Rs. 1,50,000/-
b) Amenities to workers and welfare	- Rs. 20,000/-
c) Rent for factory & office premises	- Rs. 60,000/-
d) Insurance on assets other than machinery :	
a. On stock worth Rs. 4.50.000 @ 0.8%	
b. On furniture, office equipment etc. Rs. 1.80.000 @ 0.7%	
e) Factory maintenance	- Rs. 25,000/-
f) Electricity and water charges	- Rs. 32,000/-
g) Travelling & conveyance	- Rs. 22,000/-
h) Stationary & office expenses	- Rs. 8,000/-
i) Telephone charges	- Rs. 20,000/-
j) Miscellaneous expenses	- Rs. 21,000/-