

B.E. PRINTING ENGINEERING THIRD YEAR SECOND SEMESTER – 2023

ESTIMATING AND COSTING

Time : Three hours

Full Marks : 100

Answer from all the groups.

GROUP - A

- 1.a) Define printing estimating. Make a distinction between cost estimating and price estimating procedure. 2+8
- b) Define depreciation with example. 4
- c) What are the basic principles for classification of the cost? In each classification there are various segments. Explain each segment. 6

GROUP - B

- 2.a) Design an estimate sheet. 10
- b) Some sorts of guidelines are necessary for a printing estimator. Discuss in details. 10

OR

- 3.a) What do you understand by International series paper? Mention their specific applications in printing industry. 3+3=6
- b) Which types of informations are generally mentioned in quotation letters? 5
- c) Outline a MIS of a printing organization. 9

GROUP – C

- 4.a) Find the ream weight of 80 gsm maplitho paper of royal size. 2
- b) Find the gsm of 13.6 kg/ream of double crown size. 2
- 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 216 pages excluding cover of demy octavo size is to be printed in 4 colours in sheet-fed offset process. The number of copies to be printed is 1,100 copies. 70 gsm of super calendared paper in double demy size is to be used for text. Cover is to be printed in 4 colours on 120 gsm indian art paper of double demy size on one side in sheet-fed offset.

Consider the paper wastage is 1.2% per colour and also consider the ink wastage is 1.1% per colour.

Find the quantity of ink and paper to be consumed for printing the book. $10+4=14$

GROUP – D

Answer any *two* questions.

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

No. of copies : 1,000

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

No. of pages : 192 excluding cover

Composing area : 18 x 22 cms.

160 pages – printed in 1-colour line and sketches.

16 pages - printed in 2-colour line and halftone

16 pages - printed in 4-colour line and halftone

Text paper used : 70 gsm of maplitho paper and double demy size.

Cover paper used : 210 gsm of Indian art board and double demy size.

Paper price : Maplitho paper – Rs. 98,000/ton

Indian art board – Rs. 90,000/ton

Composing cost : Rs. 0.10 per sq. cm.

Film processing cost :

1 colour line text and sketches @Rs. 0.15/sq. cm.

2 colour line and halftone @Rs. 0.25/sq. cm.

4 colour line and halftone @Rs. 0.55/sq. cm.

Imposition cost/forme of 16 pages :

Rs. 150 for 1 colour

Rs. 290 for 2 colours

Rs. 500 for 4 colours

Plate processing cost/forme of 16 pages :

Rs. 190/colour for 1 colour

Rs. 200/colour for 2 colours

Rs. 210/colour for 4 colours

Impression cost : Rs. 160/thousand/colour/forme of 16 pages

Cover printing cost : Rs. 6,000/- excluding paper cost

Finishing and binding charges : Rs. 3.00 per copy

Paper wastage : 1.15% per colour

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5. A Magazine consisting of 80 pages excluding cover of medium quarto size is to be printed in 4 colours in gravure process of 2,50,000 copies.

Paper to be used is 70 gsm foreign art paper of double medium size web, cover to be printed in 4 colours in 120 gsm foreign art paper of double medium size web on both sides in gravure.

Also consider the following informations :

Paper price : Rs. 96,000/ton

Ink price : Rs. 390/kg

Paper wastage : 1.05% per colour

Ink wastage : 1.1% per colour

Film and imposition cost/forme of 8 pages:

Rs. 300 per colour

Cylinder processing cost of 8 pages :

Rs. 2,400 per colour

Impression cost : Rs. 175/thousand/colour/forme of 8 pages.

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Finishing and binding charges : Rs. 2.50 per copy.

Find out the per copy cost of Magazine.

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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. 1,10,00,000/-
Manpower (in one shift)	No.	Rs.(p.m.)
Printer	1	20,000/-
Asst. printer	1	18,000/-
Feeder man	1	14,000/-
Ink man	1	14,000/-

Salary of supervisor @ Rs. 25,000/shift/p.m.

Cost of exclusive direct consumables :

Cost of Rubber blankets @ Rs. 2,800/- each to last for 42 lakh impressions. – 2 Nos.

Re-copperising cost @ Rs. 3,000/- each to last for 5 years in single shift working – 5 Nos.

Other cost of exclusive direct consumables – Rs. 22,000 /-

Power consumption	- 20 KW
Power cost / unit	- Rs. 9.50/-
Capacity utilization	- 80%
Working hours / shift	- 8 hours
No. of working days per year	- 310 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	- 9.5%
Insurance	- 1%
Depreciation (on one shift basis)	- 10%

Other fixed annual expenditures :

a) Salaries on indirect labour, office staff including bonus, P.F., gratuity etc.	- Rs. 1,60,000/-
b) Amenities to workers and welfare	- Rs. 20,000/-
c) Rent for factory & office premises	- Rs. 50,000/-
d) Insurance on assets other than machinery :	
i) On stock worth Rs. 6,00,000 @ 0.7%	
ii) On furniture, office equipment etc. Rs. 2,50,000 @ 0.7%	
e) Factory maintenance	- Rs. 25,000/-
f) Electricity and water charges	- Rs. 45,000/-
g) Travelling & conveyance	- Rs. 20,000/-
h) Telephone charges	- Rs. 10,000/-
i) Miscellaneous expenses	- Rs. 24,000/-