

**B.E. PRINTING ENGINEERING THIRD YEAR SECOND SEMESTER – 2024**

**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) How many groups of costs are present in estimating? Describe each type citing suitable examples. 6
- c) Define depreciation with example. 4

**GROUP - B**

- 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

**OR**

- 3.a) What do you understand by International series paper? Mention their specific applications in printing industry. 3+3=6
- b) What are the basic functions that a MIS performs? How a MIS is developed? Also describe how a cost estimate sheet is related to MIS. 3+7+4=14

**GROUP – C**

- 4.a) Find the ream weight of 80 gsm maplitho paper of royal size. 3
- b) Find the gross weight of 350 gsm duplex board of 76 x 102 cms. 3

c) A balance sheet of demy quarto size containing 36 pages including cover to be printed in 4-colour in web offset process. The number of copies to be printed is 1,25,000 copies. 60 gsm of super calendar paper in demy size web is to be used for text. Cover is to be printed in 4 colours on same stock on one side in web offset.

Consider the paper wastage is 1.05% per colour and also consider the ink wastage is 1.1% per colour.

Estimate the quantity of ink and paper to be consumed for printing the balance sheet.

$$10+4=14$$

### GROUP – D

**Answer any two questions.**

5. A Magazine consisting of 64 pages excluding cover of medium quarto size is to be printed in 4 colours in gravure process of 1,50,000 copies.

Paper to be used is 70 gsm foreign art paper of double medium size web, cover to be printed in 4 colours in 90 gsm foreign art paper of double medium size web on both sides in gravure.

Also consider the following informations :

Paper price : Rs. 95,000/ton

Ink price : Rs. 480/kg

Paper wastage : 0.95% per colour

Ink wastage : 1.05% per colour

Film and imposition cost/forme of 8 pages:

Rs. 350 per colour

Cylinder processing cost of 8 pages :

Rs. 4,200 per colour

Impression cost : Rs. 170/thousand/colour/forme of 8 pages.

Finishing and binding charges : Rs. 2.25 per copy.

Calculate the per copy cost of Magazine.

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

No. of copies : 1,500

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

No. of pages : 128 excluding cover

Composing area : 18 x 22 cms.

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

16 pages - printed in 2-colour line and halftone

32 pages - printed in 4-colour line and halftone

Text paper used : 75 gsm of maplitho paper and double demy size.

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

Paper price : Maplitho paper – Rs. 92,000/ton

Indian art board – Rs. 93,000/ton

Composing cost : Rs. 0.15 per sq. cm.

Film processing cost :

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

2 colour line and halftone@Rs. 0.30/sq. cm.

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

Imposition cost/forme of 16 pages :

Rs. 150 for 1 colour

Rs. 300 for 2 colours

Rs. 550 for 4 colours

Plate processing cost/forme of 16 pages :

Rs. 225/colour for 1 colour

Rs. 230/colour for 2 colours

Rs. 240/colour for 4 colours

Impression cost : Rs. 225/thousand/colour/forme of 16 pages

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

Finishing and binding charges : Rs. 3.25 per copy

Paper wastage : 1.1% per colour

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

**M/C - I**

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        16,000/-
Ink Man	1        16,000/-

Salary of Supervisor @ Rs.24,000/shift/p.m.

Cost of exclusive direct consumables :

Cost of rubber blankets @ Rs. 3,200/- each to last for 40 lakh impressions. – 2 Nos.

Re-copperising cost @ Rs. 3,500/- each to last for 5 years in single shift working – 5 Nos.

Power consumption	18 kw
Power cost/unit	Rs. 10.50/-
Capacity utilization	80%
Working hours/shift	8 hours
No. of working days per year	300 days
Average output per shift	40,000 imp.

Other benefits to working staff :

Bonus	- 8.33%
E.S.I.	- 5%
P.F. contribution	- 8.33%
Gratuity	- 4%

Other charges :

Bank interest on machine value	- 11%
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. 22,000/-	
c) Rent for factory & office premises	- Rs. 82,000/-	
d) Insurance on assets other than machinery : On Rs. 2,80,000 @ 0.8%		
e) Factory maintenance	- Rs. 30,000/-	
f) Electricity and water charges	- Rs. 53,000/-	
g) Travelling & conveyance	- Rs. 20,000/-	
h) Miscellaneous expenses	- Rs. 35,000/-	20