

**P1168**

**[3564] - 257**

**B.E. (Printing)**

**COSTING ESTIMATING AND PROJECT MANAGEMENT &  
OPERATION RESEARCH  
(2003 Course) (408282)**

*Time : 3 Hours]*

*[Max. Marks:100*

*Instructions to the candidates:*

- 1) *Attempt any Three questions from each section.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data, if necessary.*

**SECTION - I**

- Q1)** a) Explain Cost Accounting, and elements of cost in details with proper examples. **[8]**  
b) How much is the weight of 120 GSM in single medium size & in double medium size. **[8]**
- Q2)** a) How much paper in  $51 \times 75$ cm will be required for printing 7000 booklets in  $210 \times 297$  mm size. Assume they each contain 25 pages. **[8]**  
b) Give structural format of cost sheet. Explain relation between prime cost, factory cost & cost of sales. **[8]**
- Q3)** What is Breakeven Analysis. Derive Relation for Breakeven Point. **[16]**
- Q4)** Explain in detail with example the project management & also discuss Technical feasibility of project. **[16]**
- Q5)** a) Explain difference in project team and project leader. **[8]**  
b) Define quality and explain seven steps check for quality Assurance. **[10]**

**P.T.O.**

**SECTION - II**

- Q6)** a) Write difference between PERT and CPM. [8]  
b) Explain in detail different types of float. [8]

- Q7)** a) Explain Different types of activity and events. [8]  
b) Explain in detail the crashing of activity. [8]

- Q8)** Solve Transportation Problem for minimization criteria. [16]

$W_1$	$W_2$	$W_3$	Supply
16	20	12	200
14	08	18	160
26	24	16	90
180	120	150	are demand for

$W_1, W_2, W_3.$

- Q9)** Find the Assignment of men to jobs that will minimize the total time. [16]

	I	II	III	IV
A	2	9	2	7
B	6	8	7	6
C	4	6	5	3
D	4	2	7	3
E	5	3	9	5

- Q10)** Use simplex method to solve following L.P. problem. [18]

$$Z_{\max} = 100x_1 + 60x_2 + 40x_3$$

subjected to constraints.

$$x_1 + x_2 + x_3 \leq 100,$$

$$10x_1 + 4x_2 + 5x_3 \leq 600.$$



Total No. of Questions : 6]

[Total No. of Pages : 2

**P1309**

**[3564]-268**

**B.E. (Printing)**

**STUDY OF PACKAGE DESIGN & MATERIALS**

**(2003 Course) (Elective - II)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates :*

- 1) All questions are compulsory.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*

**SECTION - I**

**Q1) Classify raw materials for paper packaging with properties & application.[16]**

OR

Explain the process of manufacturing craft paper.

**Q2) Define corrugation. Discuss types and applications of different flutings, along with properties in detail. [18]**

OR

Explain in detail structure of corrugation machine and it's working.

**Q3) Explain the process of making universal type carton. [16]**

OR

Compare punching process with universal process in detail.

**SECTION - II**

**Q4) State the process of a jigged die manufacture. [16]**

OR

Discuss advantages / disadvantages of jigged die and punching.

*P.T.O.*

**Q5) Calculate the following:**

**[18]**

- a) Weight of carton.
- b) Cost per carton.
- c) Total paper required from the specifications.
  - i) LBH : 11X7X9
  - ii) 5 Ply.
  - iii) Paper 180 GSM (Paper Rate : 20 Rs./kg, Conversion: 5 Rs./kg).
  - iv) Qty : 3,500 Process : Universal.

OR

Calculate the following:

- a) Weight of carton.
  - b) Cost per carton.
  - c) Cost of punch die from the specifications:
    - i) LBH : 12X7X10
    - ii) Duplex Board.
    - iii) Paper 350 GSM (Paper Rate : 32 Rs./kg).
    - iv) Qty : 2,500
    - v) Blades : Rs. 20 / feet.
    - vi) Ply : Rs. 24 / Sqr Ft.
    - vii) Punching : 300 Rs. / 1000.
- (Assume any additional data if reqd.)

**Q6) What are the quality checks in paper packaging? Explain all in detail. [16]**

OR

Explain different printing processes in relation to paper packaging.



Total No. of Questions : 6]  
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[3564]-267  
**B.E. (Printing)**  
**STUDY OF ADVERTISING AND MULTIMEDIA**  
**(2003 Course) (Elective - II)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions :*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1) Explain :** **[18]**

- a) Product life cycle and its revival.
- b) 4P's of marketing.

OR

- a) What are the tools of marketing communication mix (Promotion mix).
- b) Explain each tool in detail.
- c) Compare and contrast between advertising and other tools of promotion mix.

**Q2) Explain in details "AIDA" model designed for effectiveness of advertising. [16]**

OR

Explain following

- a) Public relations advertising.
- b) Public service advertising.

**Q3) What is market segmentation? What are its methods? [16]**

OR

Explain following :

- a) Mass marketing.
- b) Product differentiated marketing.
- c) Target Marketing.

**P.T.O.**

## SECTION - II

**Q4)** Explain any 3 market survey techniques with its advantages and disadvantages. [16]

OR

Explain in brief:

- a) Vehicle distribution.
- b) Vehicle exposure.
- c) Advertising exposure.
- d) Media audience.

**Q5)** What are the salient features of Print media? How does it scores over other media? What are the limitations of this media? [18]

OR

Write short note on :

- a) ABC
- b) TRP
- c) NRSC
- d) INS.

**Q6)** Explain following terms in context with branding : [16]

- a) Brand Personality
- b) Brand Positioning
- c) Brand equity.

OR

What are the variables which affect the consumer behaviour / decision process?  
Explain each in greater details.



Total No. of Questions : 6]

[Total No. of Pages : 3

**P1210**

**[3564] - 266**

**B.E. (Printing)**

**SUBSTRATES AND INK TECHNOLOGY**

**(2003 Course)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION - I**

- Q1)** a) Draw a neat diagram of uni-flow cylinder mould machine and state the importance of multi-vatt cylinder mould machine. [10]
- b) Comment on any two : [8]
- i) Hydra Pulper.
  - ii) Conical Refiner.
  - iii) Fourdiner machine.

OR

- a) Name the flexible packaging material used in packaging and state the importance of poly propylene in packaging. [10]
- b) Mention the qualities required in paper for printing (Any two) : [8]
- i) News paper.
  - ii) Offset printing paper.
  - iii) Mirror Paper.
- Q2)** a) Explain the importance of the following properties in the selection of paper for printing job. [8]
- i) Moisture content.
  - ii) Stiffness.
  - iii) Opacity.
  - iv) Caliper.
- b) Which precautions are essential for ordering the paper in sheet size?[8]

**P.T.O.**

OR

- a) Discuss the importance of paper in the printing job (any two) : [8]
- i) Grammage.
  - ii) Tensile Strength.
  - iii) Cobb Factor.
  - iv) Finish of the Paper.
- b) Which precautions will be taken while ordering the paper in reel size?[8]

- Q3)** a) State the important points to be considered while estimating the direct cost of the printing job. [8]
- b) State the grades of paper used for printing your college magazine and calculate the requirement of paper in size 63.5 x 91 cms for printing 16 pages of matter and 4 pages cover paper in size 58.5 x 45.5 cms in the magazine size 21.5 x 27.5 cms for 1000 copies. [8]

OR

- a) Comment on BIS standard for printing paper. [8]
- b) Find the total requirement of paper in the size 63.5 x 91 cms for printing 20,000 number booklets in size 210 x 297 mm assuming booklet contains 24 pages. [8]

### **SECTION - II**

- Q4)** a) Describe the principle of ink formulation. [6]
- b) Briefly explain the flexographic printing technique with reference to its inking system. [6]
- c) What are the requirements of Gravure inks. [6]

OR

- a) Explain the significance and method of color matching for printing inks.[6]
- b) With the help of neat sketch describe the ink transfer in Gravure/inlaglio printing process. [6]
- c) Bring out the distinction between UV curing and EB curing mechanisms.[6]

- Q5)** a) Explain the relevance and purpose of quality control of printing inks. Give examples of such controls. [8]
- b) What do you understand by 'total quality control'? Explain with reference to printing inks. [8]



OR

- a) Comment on the quality control and printed job. [8]
- b) What are the principal quality checks to be considered for offset printing inks for getting best quality jobs. [8]

**Q6)** Comment on any two of the following : [16]

- a) Green Printing.
- b) Plasticizers in printing inks.
- c) VOC and its significance.

OR

Write short notes on any four - [16]

- a) Water based inks.
- b) Electro-Graphic inks.
- c) Waste materials and its disposals.
- d) Heat set inks.
- e) Role of waxes in inks.
- f) Oxidation drying mechanism.



Total No. of Questions : 6]  
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[Total No. of Pages : 3

[3564]-265

**B.E. (Printing)**

**ASSEMBLY AND MAINTENANCE OF PRINTING MACHINES**

*Time : 3 Hours]*

*[Max. Marks : 100*

**Instructions :**

- 1) *All questions are compulsory.*
- 2) *Answer any one of each question a or b.*
- 3) *Q.1, 2, 4 and 5 have 16 marks and Q.3 and 6 have 18 marks.*
- 4) *Start every question on a new page.*

**SECTION - I**

**Q1) a) Answer any four :**

- i) What are the requirements when maintaining and cleaning printing units?
- ii) What are the three common causes of failure or breakdown?
- iii) Why is it necessary to clean the bearers on all cylinders in the printing unit?
- iv) What checks must be carried out when replacing rollers in the inking system?
- v) What safety devices are there in a Printing machine? What would your action be if any of the safety devices are found to be inoperative?

**b) Answer any two :**

- i) In a printing machine speed control systems are used. Explain in details variable speed pulley system with a suitable diagram.
- ii) What are the various types of couplings used in printing industry? Explain with a diagram: Lovejoy coupling.
- iii) What are the different types of cams used explain with suitable diagram.

***P.T.O.***

**Q2) a) i)** A printing machine consists of various groups of mechanical parts. Explain with suitable diagrams the construction of offset machine with blanket to blanket printing arrangement.

OR

Letterpress Flatbed printing machine.

ii) What are chain drives commonly replaced with in modern times? Advantage thereof.

b) i) What are the type of inking systems used in sheet-fed offset printing machine? Explain any one with diagram.

ii) What are the different types of feeding systems used in printing industry?

**Q3) a)** The purpose of daily/routine inspection of a machine. Whose responsibility is it. How does it help in keeping the equipment running with minimum mean time between failures?

b) What is Proactive Maintenance? How can it reduce the incidence of Breakdowns?

## SECTION - II

**Q4) a)** What do you understand under Maintenance? Explain in detail.

b) What is to be observed in Lubrication and care to be taken? Explain the different types of lubrication systems with suitable diagrams of any two types.

**Q5) a) i)** When installing a machine what are the important points to be observed? Importance of solid foundation and proper levelling.

ii) Necessity of sound proofing of machines such as folding machines? What are the health considerations of such arrangements?

b) i) What is the advantage of a needle bearing over a bush (sliding) bearing? What are sintered bearings and their advantages?

ii) In modern machines the entire gear system and other drive components are encased in an oil bath/oil sprinkler system. Explain reasons and advantages of the same.

**Q6) a) i)** What are the various tools used for maintenance? List at least 8 with diagram.

ii) The cutting action of a Paper cutting machine is -----? Explain the reason for the same.

b) What are the principles of Plant layout? Explain in detail.

Prepare a layout for a printing press room with following equipment :

Work out the required area for such a layout.

- i) A4 colour offset machine  $100 \times 140$  cms.  
Area of the machine is 60 feet by 15 feet.

CPC unit requires an area of 8 feet  $\times$  15 feet.

Ancillary equipment such as compressor, chilling unit etc. occupies an area of 16 feet  $\times$  10 feet.

- ii) A4 colour offset machine  $25 \times 38$  inches  
Area required for the machine is 8 feet  $\times$  34 feet.
- iii) 2 single colour offset machines  $20 \times 30$  inches  
Area required by each machine 8  $\times$  12 feet.
- iv) 1 die cutting cylinder machine  $25 \times 38$  inches  
Area required by the machine is 14 feet  $\times$  9 feet.

Supervisor cabin  $12 \times 10$  feet.

Test equipment table 12 feet  $\times$  6 feet.

Storage area for consumeables and spares  $20 \times 20$  feet.

Prepare the layout taking into consideration the above equipment providing space for working area and work in process.

Layout only as a block diagram.



Total No. of Questions : 6]

[Total No. of Pages : 2

**P1308**

**[3564] - 264**

**B.E. (Printing)**

**TECHNOLOGY OF GRAVURE AND FLEXO**

**(2003 Course)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answer 3 questions from Section - I and 3 questions from Section - II.*
- 2) Question Nos. 1 and 4 are compulsory. Out of the remaining attempt 2 questions from Section I and 2 questions from Section II.*
- 3) Answers to the two sections should be written in separate books.*
- 4) Neat diagrams must be drawn wherever necessary.*
- 5) Figures to the right indicate full marks.*

**SECTION - I**

**Q1) a)** Explain in detail Gravure Machine Principles. **[10]**

**b)** Explain the features and applications of Gravure Process. **[8]**

OR

**a)** Explain in detail Sections of a Flexo Press. **[10]**

**b)** Explain the features of configurations of Flexo. **[8]**

**Q2) a)** Explain in detail effect of viscosity on Gravure print quality. **[8]**

**b)** "Doctor Blade is the heart of Rotogravure Print Unit" - Explain. **[8]**

OR

**a)** Write notes on **[8]**

i) Positive angle doctor blade.

ii) Reverse angle doctor blade.

iii) Doctor blade Holder.

iv) Back-up blades.

**b)** Explain types of dryers used in gravure and Flexo. Also explain the factors affecting efficiency of dryer. **[8]**

**Q3)** Explain in detail register control system of a Gravure press. **[16]**

OR

*P.T.O.*

- a) Explain in detail web tension control on a press. [8]
- b) Write notes on [8]
  - i) Web Aligner.
  - ii) Web Transport Roller.
  - iii) Web viewing System.
  - iv) Splicing Mechanism.

**SECTION - II**

- Q4)** a) Explain in detail role of fountain roller in flexography. [10]
- b) Write notes on [8]
  - i) Fountain Roller Specifications.
  - ii) Elastomers for Fountain Roller.
  - iii) Fountain Roller Drive System.
  - iv) Fountain Roller Loading.

OR

- a) Explain in detail role of Anilox in flexography. [10]
- b) Write notes on [8]
  - i) Factors affecting Anilox selection.
  - ii) Anilox Cell configurations.
  - iii) Anilox maintenance and cleaning.
  - iv) Anilox covering.

- Q5)** a) Explain in detail function of an Gravure Impression System. [8]
- b) Explain different types of Impression System on a Gravure Press. [8]

OR

- a) Explain in detail Impression Loading System for a Gravure Press. [8]
- b) Write notes on [8]
  - i) Effect of Shore Hardness on Print Quality.
  - ii) Undercutting of Impression Roller.
  - iii) ESA ink Transfer.
  - iv) Elastomers for Impression Roller.

- Q6)** Explain in detail fingerprinting of a Gravure Press. [16]

OR

- Explain in detail fingerprinting of a Flexo press. [16]



Total No. of Questions : 6]

[Total No. of Pages : 2

**P1209**

**[3564]-261**

**B.E. (Printing)**

**NEWSPAPER TECHNOLOGY**

**(2003 Course) (Elective - I)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answers to the two sections should be written in separate answer books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) All questions are compulsory.*

**SECTION - I**

**Q1)** State and explain different departments in newspaper editorial department. **[16]**

OR

Compare automatic workflow and manual workflow with advantages & limitations in newspaper production. **[16]**

**Q2)** Write short notes on:

- a) LAN Networking in newspapers. **[8]**
- b) Press configurations. **[8]**

OR

Explain the process by which different newspaper pages are made and sent to various printing destinations for printing, despatch etc. **[16]**

**Q3)** Explain the need to check input raw material prior to taking for production. Explain any 3 tests which can be carried out in the press. **[18]**

OR

State and explain different end-use properties as well as runnability properties of Newsprint. **[18]**

**P.T.O.**

**SECTION - II**

**Q4)** Explain CTP set up in newspaper organisation. How is CTP advantages over conventional? [16]

OR

Which are various mail room operations possible on medium scale newspaper printing plant? [16]

**Q5)** Explain the use of archival in newspaper production. Which are the various trends and systems developed in recent times? [16]

OR

Explain what is OPI server. How is it an important part in workflow? [16]

**Q6)** 'Ink cans have replaced by ink pumping units'. Explain it w.r.t. newspaper waste control measures. [18]

OR

State the systematic methods to minimise white waste and printed waste to improve productivity. [18]

□□□



Total No. of Questions : 6]

[Total No. of Pages : 2

**P1208**

**[3564]-259**

**B.E. (Printing)**

**OFFSET MACHINES - II**

**(2003 Course)**

*Time : 3 Hours]*

*[Max. Marks : 100*

**Instructions :**

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*

**SECTION - I**

**Q1)** State and describe different web press configurations used for news paper and commercial printing. **[16]**

**OR**

Describe any one automatic splicing mechanism with neat and labelled sketch. State sequence of operations. **[16]**

**Q2)** Write short notes on: **[16]**

- a) Plate cassette loader in automatic plate loading mechanism.
- b) Gapless blanket technology.
- c) Anilox inking system – its advantages.
- d) Ink presetting.

**OR**

Write short notes on: **[16]**

- a) Turbo dampening system.
- b) Combination - continuous flow d.s.
- c) Alcohol - free dampening solution.
- d) Brush - roller dampening system.

**Q3)** a) Describe different types of dryers found on heatset press. **[9]**

b) Compare heatset and coldset presses. **[9]**

**OR**

Describe former folder and chopper folder mechanism. **[18]**

**P.T.O.**

**SECTION - II**

**Q4)** State and describe the various tension zones in web offset press. [16]

**OR**

State and explain various web turning devices used on web presses. [16]

**Q5)** Write short notes on: [16]

- a) Remoisturising unit.
- b) Refrigeration Tank (chilling unit for fountain).
- c) Web Pre heaters.
- d) Remote console.

**OR**

- a) State checklist of maintenance of chill roll system. [8]
- b) Explain efficient plumbing for chillers. [8]

**Q6)** a) Explain any 4 infeed problems on web press. [8]

- b) Explain reel handling in transportation and in press. Explain problems generating if reel is not handled correctly. [10]

**OR**

State any 4 input and output characteristics for any 3 papers used on web presses. [18]

