UNIVERSITY OF PUNE
[4364]-188
B. E. (Printing) Examination - 2013
Technology of Gravure and Flexo (2003 Course)

[Time: 3 Hours] [Max. Marks: 100]

Instructions:
1. Answers to the two sections should be written in separately.
2. Draw neat diagram wherever necessary.

SECTION -I

Q.1  A  Describe in detail Gravure printing unit along with its applications  18

OR

Q.1  A  Explain along with features Inline Flexo Press  18
Q.2  A  Explain pneumatic and hydraulic impression loading system  16

OR

Q.2  A  Explain positive and reverse angle doctor blade system  16
Q.3  A  Explain the role of idle rollers on a Gravure press  16

OR

Q.3  A  State Causes and Remedies of the following:  16
   1) Screening
   2) Hickeys
   3) Wrinkles
   4) Missing prints

SECTION II

Q.4  A  Explain in detail engraving of an anilox roller  18

OR

Q.4  A  Explain the fountain roll inking system of a flexo press  18
Q.5  A  Explain types of pressurization system of Gravure Press  16

OR

Q.5  A  Explain the effect of pressure and speed on Gravure print quality  16
Q.6  A  Explain in detail standardization of a Gravure press  16

OR

Q.6  A  Explain in detail fingerprinting of a flexo press.  16
UNIVERSITY OF PUNE
[4364]-192
B. E. (Printing) Examination - 2013
Study of Package Design & Materials (2003 Course)

[Time: 3 Hours] [Max. Marks: 100]

Instructions:

Solve 3 questions from each section.

SECTION-I

Q.1 Define a Package. Explain importance of packaging in detail. 16

Q.1 Discuss importance of packaging in extreme climate areas 16

Q.2 Write notes on:
   i) Duplex   ii) Craft paper  iii) Adhesives 18

Q.2 Discuss Parameters affecting quality and strength of boards. 18

Q.3 Discuss Die making and machine used for punching. 16

Q.3 Explain Die making process in detail 16

SECTION II

Q.4 Discuss Flexographic Process for Package Printing with limitations. 18

Q.4 Discuss Duplex board Printing and problems associated 18

Q.5 Explain any 3 test on a ready package. 16

Q.5 Describe Bursting strength testing machine in detail. 16

Q.6 Describe costing of a corrugated carton with examples. 16

Q.6 Explain the impact of packaging on global warming. 16
Q.1 a) Prepare a cost sheet from the following data [8]
ABC Pvt. Ltd., a stationery manufacturing company, produces two types of items, as A- for the school and B- for the office. From the following available, prepare cost sheet for the item A and B.
Direct material – A: 27,300/- B: 97,850/-
Direct labour -A : 15,600/- B: 61,800/-
Direct expenses – A : 6240/- B: 26,780/-
Factory overheads are charged at 75% on labor cost. Administrative overheads are charged at 25% on factory cost. Selling and distribution overheads A : 25/- and B: 55/- per unit Profit : 10% for both the items
Items sold A: and B: 206

b) Comment on the following [8]
i) Marginal cost
ii) Standard cost

OR
Q.1 a) Prepare a cost sheet from the following data

The standard production of a particular product is 20 units / day and the rate of wages is Rs. 60/- per unit, if daily production is 20 units per day more. The rate of wages is Rs. 50/- per unit if the production is less than 20 units per day. Cost of material is Rs. 30/- per unit. It is proposed to charge factory overheads according to one of the following method, i) 80% on prime cost, ii) 100% on labour cost

Calculate the data in the form of suitable statement, finding out factory cost per unit under each of the above method, if daily production is 15 units, 20 units and 25 units.

b) Comment on the following:
   - Product cost
   - Process cost

Q.2 a) Explain the term Globalization with respect to Printing Industry.  

b) Differentiate between Perfect competitive, Monopoly and Monopolistic market with suitable examples.

OR

Q.2 a) Explain in detail the element of Direct costs with suitable examples.

b) Explain in detail the element of Indirect costs with suitable examples

Q.3a) Explain the project scheduling and economical feasibility with the help of any appropriate example

b) How to ensure the quality of the project? Explain with the suitable Example.

OR

a) What is Project Management? Explain all the facets of Project Management.

b) Explain the characteristics to become a successful project manager.
SECTION 2

Q.4) Consider a task of ISO 9000 quality certification for an organization. The activity involved dependence and estimated duration are as given below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dependence</th>
<th>Estimated duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>to</td>
</tr>
<tr>
<td>A</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>A</td>
<td>14</td>
</tr>
<tr>
<td>D</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
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<td>18</td>
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<tr>
<td>F</td>
<td>D</td>
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<tr>
<td>G</td>
<td>D, E</td>
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</tr>
<tr>
<td>H</td>
<td>F, G</td>
<td>18</td>
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<tr>
<td>I</td>
<td>D, G</td>
<td>28</td>
</tr>
<tr>
<td>J</td>
<td>A, B</td>
<td>5</td>
</tr>
</tbody>
</table>

Find total Float, Free float and Independence Float.

Q.5 \( Z_{\text{min}} = 12x_1 + 20x_2 \) [16]
Subjected to,
\[ 6x_1 + 8x_2 > 100 \]
\[ 7x_1 + 12x_2 > 120 \]
\[ x_1, x_2 > 0 \]

OR

Q.5 \( Z_{\text{max}} = 10x_1 + 20x_2 \) [16]
Subjected to,
\[ 3x_1 + 2x_2 < 1200 \]
\[ 2x_1 + 6x_2 < 1500 \]
\[ x_1 < 350 \]
\[ x_2 < 200 \]

Q.6 Find the job sequence to minimize total time in sequence A, B, C and find idle time for machine B and machine C [8]

<table>
<thead>
<tr>
<th>Job</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>
b) Find the minimum transportation cost

\[\begin{array}{cccc}
A & 1 & 2 & 3 & 4 \\
4 & 6 & 8 & 13 & 50 \\
B & 13 & 11 & 10 & 8 \\
70 & 8 & 10 & 30 & 50 \\
C & 14 & 4 & 10 & 13 \\
D & 9 & 11 & 12 & 8 \\
25 & 35 & 105 & 20 & \\
\end{array}\]

OR

Q.6. a) Solve Assignment problem

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>17</td>
<td>8</td>
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<tr>
<td>2</td>
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<td>5</td>
<td>14</td>
<td>10</td>
<td>12</td>
<td>11</td>
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</tbody>
</table>

b) Derive the relation for EOQ for inventory model.  

[10]
UNIVERSITY OF PUNE

B.E.(Printing) Examination 2013
Surface Preparation II
(2003 pattern)

Time-Three hours Maximum Marks-100
[Total No. of Question=12] [Total no. of printed pages= 2]

Instructions:
(1) Answer to the TWO sections should be written in separate answer books
(2) Neat diagrams must be drawn whenever necessary.

SECTION-I

Q.1 (a) Describe in detail Rubber plate-making. (18)

OR

Q.1 (a) Explain in detail Design requirements for Flexography. (18)

Q.2 (a) Describe the effect of Back and main exposure on plate reproduction. (16)

OR

Q.2 (a) Calculate distortion factor and new negative length for 2.84 mm plate. Thickness having printed length of 20cm. (16)

Q.3 (a) Explain in detail processing of 1.7 mm PP Flexo Plate. (16)

OR

Q.3 (a) Explain on press and off press flexo plate mounting technique. (16)
SECTION-II

Q.4 (a) Describe in detail Digital flexo plate-making. (18)

OR

Q.4 (a) Explain in detail stages involved in optimization of a Flexo Plate. (18)

Q.5 (a) Explain in detail Chemical Etching of a Gravure cylinder. (16)

OR

Q.5 (a) Explain the electronic engraving of a Gravure cylinder. (16)

Q.6 (a) Explain in detail plating variables for Gravure cylinder making. (16)

OR

Q.6 Write notes on.

1. Role of Copper and Chrome  2. Gravure Cell structures
UNIVERSITY OF PUNE
[4364-183]
B.E.(Printing) Examination 2013
Offset Mechanics-II
(2003 pattern)

Time-Three hours     Maximum Marks-100
No. of Question=6]                      [Total no. of printed pages= 2]

Instructions:
(1)All questions are compulsory.
(2)Answer to the TWO sections should be written in separate answer books

SECTION-I

Q.1 Explain the following (Any Two). (16)
1.Draw neat diagram of vertical and horizontal presses. Explain their differences.
2.Explain working of dancer roller with the help of neat diagram.
OR

Q.1 Explain the following. (16)
1.Basement reel stands.
2.Splice arm
3.H type and Y type press configuration
4.Reel structure

Q.2 1.Explain flapper bar and brush dampening system. (8)
2.Explain metal backed blanket. (8)
OR

Q.2 Explain
1.Arithmetic of packing for blanket cylinders.
2.Plate bending mechanism

Q.3 1.Explain different stages of setting of ink in web offset. (18)
OR
Q.3 1.State working of ribbon folder and explain its utilities. (9)
2.List down various parts of jaw folder and its significance. (9)

Q.4 1.What is web tension in printing unit? How does fountain solution and ink govern them? (18)
Q.4 Explain the effect of moisture in paper on web tension. Which section of press has more chances of web break in machine and why? 

Q.5 Explain use and function of remote console and plate scanner on web presses.

Q.5 What is total productive maintenance? Explain its importance with respect to web offset and newspaper production.

Q.6 Explain remedies for the following.

1. Roller glazing
2. Doubling
3. Slur
4. Dot spread on print

Q.6 Explain following paper problems.

1. Web tear
2. Web out of round
3. Too many splices in paper reel
4. Missed splice
UNIVERSITY OF PUNE
[4364-184]
B.E.(Printing) Examination 2013
Electronic Image Setting
(2003 pattern)

Time-Three hours
[Total No. of Question=6]
Maximum Marks-100
[Total no. of printed pages= 2]

Instructions:
(1) All questions are compulsory.
(2) Neat diagrams must be drawn whenever necessary.

SECTION-I

Q.1 (a) What is workflow? What is difference between workflow and jobflow? Give example of each. (16)
(b) Draw the workflow for newspaper work and explain the same. OR
(a) Write short notes on:
   (a) Apr and ODI Server
   (b) Imposition: Conventional Vs Digital

(b) Explain the following
   (a) Trapping
   (b) Pre-flight checking.

Q.2 (a) What is job ticket? Write in details its purpose and need. (16)
(b) Draw a workflow for complete magazine work and also explain the same.

Q.2 (a) What is the difference between conventional and digital workflow. State merits of digital over conventional workflow.
(b) What is job archiving? Explain in details. State any case where job archiving is very significant. (16)

Q.3 Write note on:
   (a) Font emulation
   (b) PJTF
   (c) Image setter resolution
   (d) Postscript as a output format OR

Q.3 What are the different types of PDF exclusive printing? Explain in details. (18)
SECTION-II

Q.4  (a) Explain the following modules.  (18)
      (i) Management module
      (ii) Production module
(b) What is JDF? What are its features and advantages?
      OR

Q.4  (a) Explain the following  (18)
      (i) Job administration module
      (ii) Job archiving module
(b) How is PDF file said to make the workflow more efficient? Explain in details.

Q.5  (a) What are different types of proofs? Which type of proof is termed as contract proof? Why it is termed so?  (16)
      OR

Q.5  Explain any type of digital proofing technology with neat principle diagram of working.  (16)

Q.6  Explain in details of lossless image compression.  (16)
      OR

Q.6  Explain with neat workflow diagram fundamental steps and elements of digital image processing.  (16)
SECTION I

Q1) a) Explain in detail the necessities for packaging. [18]

OR

Q1) Write notes on
a) PS  b) LDPE  c) BOPP [18]

Q2) Explain in detail Hot-Melt lamination process. [16]

OR

Q2) Explain Blown film Extrusion technique. [16]

Q3) Explain in detail Retort packaging technique for a product. [16]

OR

Q3) Explain in detail Aseptic packaging for a liquid product. [16]

SECTION II

Q4) Explain various types of closures along with their applications [16]

OR

Q4) Describe the slitting and pouching technique for a flexible pouch. [16]

Q5) Explain the packaging methods for alcoholic beverages. [18]

OR
Q5) Mention deterioration factors and packaging techniques for the following:
   a) Cheese    b) Cooked Meat    c) Mineral Water

Q6) Explain the Rotogravure process for Flexible Packaging.

OR

Q6) Explain the Flexography process for lami-tubes
UNIVERSITY OF PUNE
[4364]-187
B. E. (Printing) Examination - 2013
Security Printing(2003 Course)

[Time: 3 Hours] [Max. Marks: 100]

Instructions:
1. All questions are compulsory answer any one of each question
2. Q. 1, 2, 4 and 5 have 16 marks and Q. 3 and 6 have 18 marks

SECTION-I

Q. 1 A  What do you understand by the term Security Printing  16

OR

Q. 2 A  What are the considerations when designing security documents.  16

B  The inks used in Security Printing  16

Q. 3 A  What is RFID technology. When did it start and what is the present scenario of the same.  18

OR

B  Define Smart Cards, Club Cards, Credit/Debit Cards.  18
Which of these have direct financial implications? And how?

SECTION II

Q. 4 A  Define MICR printing. What is the use of the same  16
Since when did it start in India

OR
B Give the layout of the currently used MICR cheque in India explaining the code line.

Q5 A Explain the various Substrates used in Security Printing. Importance of watermarks on substrates.

OR

B Explain the various testing methods used and the deterrence measures used in inks and substrates

Q6 A What in present times is the importance of Brand security and brand protection.

OR

B Explain: Holograms and its use. Use of invisible document security
UNIVERSITY OF PUNE
[4364]-190
B. E. (Printing) Examination - 2013
SUBSTRATE AND INK TECHNOLOGY
(4082890) (2003 Course)

[Time: 3 Hours] [Max. Marks: 100]

Instructions:
2 Answers to the two sections should be written in separate answer-books.
3 Black figures to the right indicate full marks.
5 Neat diagrams must be drawn wherever necessary.

SECTION -I

Q.1 A) Answer any Two [18]

Explain coating process and their importance in paper manufacturing

B) Draw a neat diagram of uni-flow vat cylinder mould machine and discuss the advantages of this machine in the production of paper

C) Mention the grades and advantages of polyethylene and polypropylene used in flexible packaging.

Q.2 A) Answer any four [16]

i) Grammage
ii) Gloss
iii) Caliper
iv) Opacity
v) Ash Content
vi) Stiffness  

vii) Grain direction  

Q. 3 Answer any Two  

[16]

A) Different parameters need to consider while calculating total of printing job.  

B) To find the total quantity of paper required in the size 70x80.cms for printing 15,000 booklets in the size 210 mm x 297mm assuming each booklets contains 16 pages.  

C) Consider the following data  

i) Size of paper 50 x 54cms  

ii) Total no. copies to be printed 700  

iii) magazine Size 210mm x 297mm  

iv) Assume magazine contains 28 pages  

Calculate the total quantity of paper required  

SECTION II  

Q. 4 Answer any two  

[18]

A) What are the different resins used in printing inks, explain with their purpose and properties.  

B) Explain solvent based Inks  

C) Explain different types of Additives used for manufacturing printing inks  

Q. 5 Answer any two  

[16]

A) Explain the following terms by considering Flexography printing process.  

a) Viscosity
b) Parameters need to control for Ink Flow

c) Ink Temperature

B) Explain the instruments used for various ink testing methods.

C) Explain different ink testing methods used in laboratory

OR

Q. 6 Answer any two [16]

A) Explain the advantages of water based ink against solvent based ink.

B) Explain the various Waste Management techniques

C) Explain any two

a) Security printing inks

b) Green printing

c) Solvent recovery method
Instructions:

1. All questions are compulsory.
2. Draw diagrams wherever necessary.

SECTION - I

Q.1 Which are the different elements for construction of effective print advertising? Describe each in details.  

OR

Q.1 Role of copywriter and visualize is very crucial in the advertising agency. Justify.  

Q.2 What is campaigning? Explain the significance of campaigning with respect to launching of the product/services.  

OR

Q.2 With respect to Psychology used in advertisement; explain the following:  
   a. Consumer behavior  
   b. Attitude, personality and self concept  
   c. Information processing, external environment  

Q. 3 Explain types of market segmentation in details.  

OR

Q. 3 Different approaches are used for market segmentation. Explain in details.
SECTION II

Q. 4 Explain in details the process of marketing research. 16
     OR
Q. 4 Explain in details print media research. 16
Q. 5 Explain in details: product advertising and service advertising. 18
     OR
Q. 5 Compare and contrast between following types of advertising:
    a. Public Relations advertising
    b. Institutional advertising 18
Q. 6 Explain cognizance model used for effective advertising. 16
     OR
Q. 6 Explain AIDA model used for effective advertising. 16