

REFERENCE NO:EX/PG/PT/T/112A/237/2014
M. TECH. IN PRINTING ENGINEERING AND GRAPHIC COMMUNICATION
FIRST SEMESTER EXAMINATION 2014
PRINTING AND PACKAGING MATERIAL TECHNOLOGY

Use separate answer script for each part

PART-I

Answer 50 marks

1. (a) What are the properties the base of photographic films should have?
What are the different types of materials used as base of photographic films?
(b) What do you mean by "subbing"?
How subbing is achieved?
(c) Discuss the ionic structure of silver halide grain?
(d) Discuss the varying properties of photographic emulsions o far as image quality is concerned.
(e) Discuss in brief on "Pulsed-Xenon Lamps". (2+2)+(2+2)+4+4+4=20

2. (a) Why Aluminium is selected as base metal for Offset image carrier?
(b) Discuss in brief the different method adopted for improving the surface texture of the base Al before application of light sensitive coating in Offset image carrier preparation.
(c)What kind of surface treatment method is to be adopted to improve the adhesion of the diazo coating on grained Al plate?
(d) Discuss in brief what are the different types of Diazo compounds used in additive pre-sensitized plates. 5+8+2+5=20

3. (a) What happens when one-step additive developer is applied on additive diazo plates during development?
(b) Thermal type Computer-to-plate on Al base produces sharp hard dot. Why?
(c) Discuss in brief the basic structure of waterless offset plate. 3+2+5=10

4. (a)Discuss the basic structure of solid sheet photopolymer plates used in flexography.
(b)What are the different types of photopolymers used in flexographic image carrier preparation?
(c) Define photo-initiator. How does it work? Give some example of photo-initiator.
(d)What are the advantages and disadvantages of photopolymer plates? 5+5+(1+2+2)+5=20

5. (a) What are advantages and disadvantages of rubber type flexo plates?
(b) What are the different types of rubber materials used in flexo plates?
(c) What are the advantages of computer to plates? 5+3+2=10

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EXAMINATION, 2014
(1st Year – 1st Semester)**

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Time : Three hours

Full Marks : 100

Answer *question no. 1* and any *two* from the rest.

PART - II

- 1.a) What do you understand by ISO standard paper? How they are utilized in printing industry? 2+2=4
- b) Determine the footage of a roll of substance 55 book, with caliper 0.004 inch and a roll diameter of 40 inches, that is wound on a 3-inch core. 3
- c) Determine the weight of a roll of newsprint that measures 36 inches wide and 40 inches in diameter. The roll is wound on a 3-inch core. The basis weight of the stock is 30 lbs. with a caliper of 0.0025 inch. Basic size of the newsprint is 24 inches x 36 inches. 3
- 2.a) Which basic factors should one keep in mind during impact printing ink formulation? 3
- b) Write down the general characteristics of lithographic inks. 6
- c) Why finest ink film thickness is produced in offset lithography in comparison to other printing processes? 3
- d) Explain the quickset drying mechanism for lithographic inks. 8
- 3.a) What are the main ingredients of flexographic ink? 3
- b) On which factors does the choice of these ingredients depend? 4
- c) Write down the formulation of flexographic paper ink. 5
- d) What are the main features of gravure pigments? 4
- e) Write down the basic formulation of a typical gravure ink. 4

[Turn over

4. Write short notes on the following.

5x4=20

- a) Ink-jet printing ink
- b) Thermochromic ink
- c) Phosphorescent ink
- d) Metallic ink