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**MANIPAL INSTITUTE OF TECHNOLOGY**  
MANIPAL  
(A constituent unit of MAHE, Manipal)

**V SEMESTER B.TECH. (PRINT AND MEDIA TECHNOLOGY)**

**END SEMESTER EXAMINATIONS, NOV 2019**

SUBJECT: FLEXOGRAPHY, GRAVURE AND SCREEN PRINTING [PMT 3101]

**REVISED CREDIT SYSTEM**

**(14/11/2019)**

Time: 3 Hours

MAX. MARKS: 50

**Instructions to Candidates:**

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitably assumed.

**1A.** What are the variations possible with flexo printing unit? Explain the situations in which these variations are made.

**1B.** With neat sketches, explain the three types of sheeters used on gravure inline roll-to-die cut presses.

**1C.** How do you determine the optimum exposure time for both direct and indirect stencils. Explain the under and over exposure results for indirect stencils.

**[ 04 + 03 + 03 ]**

**2A.** Which flexo presses use nip-fed inking system? Explain with neat diagram the advantage of using such inking system.

**2B.** Explain the different mesh and squeegee parameters that help in varying the ink deposit on substrate.

**2C.** With a neat sketch, explain the working principle of fixed carbon bed solvent recovery plant used in gravure industries.

**[ 04 + 03 + 03 ]**

**3A.** What are the 4 sectors of gravure industry? Explain each sector with 2 product examples.

**3B.** How does mesh color, mesh grade and mesh weaving structure, have effect on print quality? Explain.

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**3C.** Describe the working principle of three types of roll followers used on flexo presses with simple diagrams.

**[ 04 + 03 + 03 ]**

**4A.** i. Calculate mesh opening and TWIV of mesh with count 280 TPI, thread diameter  $38\mu$  and fabric thickness  $74\mu$ .  
ii. Explain with neat sketches, the ON and OFF contact screen printing methods with their applications.

**4B.** i. Draw a publication gravure press with required no. of print stations, that can print 24 page signature with all pages printed in 2 colors and folded using former and jaw folder.  
ii. Why does publication gravure press use reversing units? Justify.

**4C.** What are the different types of sensors used in web guides? Explain their features and applications.

**[ (02+02) + (02+01) + 03 ]**

**5A.** i. Explain the role of banded rolls in specifying the right anilox roller for a given application.  
ii. What are the two types of impression throw-off systems used on flexo presses? Describe each with neat diagrams.

**5B.** Why does ESA required on high speed gravure presses? Explain. Compare single layer and two layer ESA impression roll designs and their usage on different ESA systems.

**5C.** Explain with neat diagram the components and working principle of cylinder bed screen printing press.

**[ (02 + 02) + 03 + 03 ]**