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

IV SEMESTER B.TECH. (MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, JUNE 2022

SUBJECT: Flexography, Gravure and Screen Printing [MED 2254]

REVISED CREDIT SYSTEM

(18/06/2022)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

Q.	QUESTION	Mark	BTL	CO
1A.	Describe the formation of rounded top dots and flat top dots. What will be the resulting image quality in both cases? Discuss the possible ways of creating flat top dots.	2	2	CO1
1B.	Compare the flexographic process with gravure process in terms of their features, merits, demerits and applications.	3	3	CO1
1C.	Discuss the different types cell structures used on anilox roller with their applications. Describe the main characteristics of anilox roller cells for selecting the right anilox for a given job.	5	2	CO1
2A.	i. Calculate the deflection on a steel fountain roller of 72 inches length with outer diameter of 5.5 inches and inner diameter of 4.75 inches subjected to a loading of 180 pounds per inch against the anilox roller. Consider the modulus of elasticity of steel is 3,00,000. ii. What should be the thickness of double adhesive tape to be used to mount a flexo plate of thickness 0.45 inches on a plate cylinder of 25.5 inches diameter. The pitch diameter of the gear mounted on the plate cylinder is 26.8 inches	2	3	CO2
2B.	Describe with neat diagrams the two types of impression throw off systems available on the flexographic presses.	3	2	CO2
2C.	Describe with neat diagrams the principle of immersion type gravure wetting system and the applicator type gravure wetting system. Compare both the inking systems.	5	3	CO3

3A.	Explain the detailed procedure of making the gravure cylinder using chemical etching process with laser ablation of acid resist.	3	2	CO3
3B.	What are the possible ways of installing an ESA system on gravure presses? Explain with simple diagrams. What are the benefits of ESA on gravure presses	3	2	CO3
3C.	Distinguish between: i. Intaglio and gravure process ii. Direct and Indirect gravure	4	3	CO3
4A.	What are tension zones? Describe the tension pattern and tension levels used in each tension zone of a flexographic press	3	2	CO4
4B.	Describe the construction of dancer roll tension control system and its working principle with neat diagrams.	3	2	CO4
4C.	With neat diagrams explain the ON and OFF contact screen printing methods. Mention 2 applications of each.	4	2	CO5
5A.	What are the consequences of improper tensioning of screen on frames? Mention the tolerances for the screen tension when printing with single screen and printing with multiple frames	3	3	CO5
5B.	What are monofilament and multifilament screen fabrics? Describe their characteristics. Describe the fabric mesh parameters that are influencing the amount of ink deposited by the screen on the substrate.	3	2	CO5
5C.	List the four functions of the squeegee used in screen printing? Describe with illustration the parameters of squeegee for varying the ink deposit for different applications.	4	3	CO5