



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

III SEMESTER B.TECH. MEDIA TECHNOLOGY

END SEMESTER EXAMINATIONS, DEC 2022

SUBJECT: MATERIAL SCIENCE [MED 2154]

REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

| <i>Qn no:</i> | <i>Question</i> | <i>M</i> | <i>CO</i> | <i>BTL</i> |
|---------------|-------------------------------------------------------------------------------------------------------|----------|-----------|------------|
| 1 | With neat diagram, discuss the components and working of wet end of Fourdrinier paper making machine. | 3 | 1 | 1 |
| 2 | With neat diagram, explain the process of manufacturing oleo-resinous varnish using cooking method. | 3 | 2 | 2 |
| 3 | With neat diagram, explain features and working of shot mill. List its advantages and disadvantages. | 4 | | |
| 4 | Compare evaporation and absorption drying mechanisms used for printing inks. | 3 | 2 | 1 |
| 5 | Discuss the factors to be considered while formulating a printing ink. | 3 | 2 | 2 |
| 6 | Discuss various stages involved in pulping process used for papermaking. | 4 | 1 | 2 |
| 7 | Explain the 2 methods of manufacturing tin plates. Discuss its advantages and applications. | 3 | 4 | 2 |
| 8 | Define set-off and its causes. Discuss various types of anti-set off compounds. | 3 | 5 | 2 |
| 9 | With neat diagrams, explain the 4 techniques used for separate the impurities for paper recycling. | 4 | 1 | 2 |
| 10 | With neat diagram, explain 2 methods of measuring water resistance at the paper surface. | 3 | 1 | 2 |
| 11 | With neat diagrams, explain the 2 varnish application systems. | 3 | 5 | 2 |

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|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|
| 12 | Explain the importance of pigment dispersion and its testing procedure. Also discuss problems that can occur in printing processes due to improper pigment dispersion. | 4 | 2 | 2 |
| 13 | Explain the procedure to test pH of a paper. How many brochures with 10cm x 20cm can be obtained from a 150kg of reel of web if printed by using a 100gsm Art paper? | 3 | 1 | 3 |
| 14 | Compare the features of carbon blacks. | 3 | 2 | 2 |
| 15 | What are the ingredients of a dampening solution? Explain each of its features and function. | 4 | 3 | 2 |