



VII SEMESTER B.TECH. (PRINT AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, NOV 2017

PE – V: SMART PACKAGING [PMT 4004]

REVISED CREDIT SYSTEM (25/11/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

1A. Explain the following packaging integrity testing methods along with their merits and demerits.

- | | |
|------------------------------------|--------------------------------|
| a) Helium mass spectrometry | c) Gas tracer detection |
| b) Weight change | d) Acoustic imaging |

1B. Explain the effect of moisture in a meat and poultry product. What are the technique used to remove moisture in such food products?

1C. Differentiate between design and working principle of Active and Passive RFID tags.

[04 + 03 + 03]

2A. Differentiate between following oxygen scavenging techniques used in packing of meat and poultry products.

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|--|
| a) Photosensitive dye oxidation and Iron powder oxidation |
| b) Ascorbic acid oxidation and Enzymatic oxidation |

2B. Explain eight major advantages of intelligent packaging in detail.

2C. Explain six major differences between QR code and RFID tags in detail.

[04 + 03 + 03]

3A. Compare the merits and demerits of the following printing processes for barcode printing.

- | | |
|---------------------------|-------------------------------------|
| a) Inkjet Printing | b) Thermal transfer printing |
|---------------------------|-------------------------------------|

3B. Explain “Antimicrobial packaging used in meat and poultry food product packaging applications.

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3C. Explain the production and working principle of a Fluorescence based oxygen sensors.

[04 + 03 + 03]

4A. Explain the following types of oxygen absorbing techniques along with its merits and demerits in detail.

a) Unsaturated Fatty Acids **b)** Iron based oxygen absorbers

4B. What is meant by “Laser surface authentication”? Explain the basic requirements to apply laser surface authentication technique for a product.

4C. Explain eight major advantages of intelligent packaging in detail.

[04 + 03 + 03]

5A. Explain the following factors and their effect on shelf life of a packaged product.

a) Microbiological growth **c)** Relative humidity

b) Gas atmosphere **d)** Light

5B. Explain the active polymer technology available for dairy food products.

5C. Explain the working of a barcode scanner with neat diagram.

[04 + 03 + 03]