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II SEMESTER M.TECH. (PRINTING AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: PE – II ADVANCES IN SPECIALTY PRINTING [PME 5235]

REVISED CREDIT SYSTEM (25/04/2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- Missing data may be suitable assumed.
- **1A.** Explain the production process of lenticular printing for 3D image.
- **1B.** Explain the working of a roll-to-set collator with a schematic diagram.
- 1C. With suitable diagrams explain the following 3D printing processes in detail
 - a) Selective Laser Sintering (SLS) b) Laminated object manufacturing

[03+03+04]

- **2A.** Explain the production process of carbonless paper and discuss the various compositions of carbonless paper in detail.
- **2B.** Explain the production process of sticker holograms with neat diagrams.
- **2C.** Explain the following security features in terms of their design, printing and security offered to prevent forgery of the document.
 - a) Infrared (IR) black ink barcode
 - b) Void security feature
 - c) Guilloche pattern
 - d) Aqua bleed ink

[03 + 03 + 04]

- **3A.** Describe variable data printing process. Explain the advantages of variable data printing in comparison with traditional printing.
- **3B.** Explain Optical Lithography and Shadow Masking process for fabricating printed electronic devices.
- **3C.** Explain the key challenges for engineering substrates for printed electronics applications.

[03 + 03 + 04]

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- **4A.** How does printed functionality open opportunities for new business? Explain.
- **4B.** Explain the process parameters that influences printing electronics using Gravure, Screen and Flexo printing.
- **4C.** Explain the different types of synthesizing PEDOT. How do you enhance the conductivity of PEDOT:PSS?

[02 + 04 + 04]

- **5A.** What are the factors that largely determine the criteria for selecting an RFID tag antenna? Explain.
- **5B.** What is Bulk heterojunction? Explain the steps involved in solar cell operation with illustration.
- 5C. Explain the processing parameters that influences the OTFT performance. What factors should be considered when selecting the deposition conditions in order to achieve high OTFT performance?

[02+04+04]