Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

V SEMESTER B.TECH (PRINT AND MEDIA TECHNOLOGY)
END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: CONTINUOUS STATIONERY AND SPECIALTY PRINTING [PME 325]
REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitable assumed.

1A. Explain the role of variable data printing in security printed products using suitable examples. **03**

1B. Explain the step by step production process of hologram roll making with diagrams. **03**

1C. Explain with neat diagram, how the following printing processes produce security features? **04**

a) Intaglio Printing process **b)** Dry offset printing

c) Thermographic Printing **d)** Digital Printing

2A. With a schematic diagram explain the process of roll to set collating. **03**

2B. With the help of schematic diagrams describe the following variable data printing process, used for self-adhesive labels. **03**

a) Inkjet printing **b)** Thermal transfer **c)** Direct Thermal

2C. Explain the features and advantages of following types of holograms. **04**

a) Scratch off Holograms **b)** Self-destructive holograms

c) Tamper proof holograms **d)** Shrink sleeve holograms

3A. With schematic diagram explain laminated object manufacturing 3D printing process and its merits and demerits. **03**

3B. Explain the following quality tests conducted for self-adhesive papers and their importance **03**

a) Peeling test **b)** Release strength **c)** Tack test

3C. M/s. Print Graph Ltd, received an order for printing 4 part mailer using two different papers. The size of single mailer is 6 inch x 3 inch and the order quantity is 5,50,000. The substrate for 1st & 2nd part is 85 gsm and for 3rd & 4th part is 45 gsm respectively. The paper roll available for 1st, 2nd part is of size 15 inch and that of 3rd, 4th part is 16 inch. If the printer plans to print this job in a 4 color multi roll web offset machine using double punch, what will be the total paper requirement for completing this printing work, by considering 6% of wastage allowance for make ready. If 22 inch and 24 inch printing units only are available then select the best one to reduce the paper wastage. **04**

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4A. Generate single check digit for the numbers 567345, 256980, 562345, 456987 & 238976. Consider MOD 11, DSR, weighted factor 2-4-2-4-2 and sum of the digits method. **03**

4B. Explain the technical reasons in detail for the followings; **03**

a) Security papers are not coated like commercial printing papers.

b) Intaglio is the main printing process for currency printing.

c) Invisible fluorescent ink is mixed with coin reactive ink before printing.

4C. Describe the manufacturing process of self-adhesive paper with neat diagram. **04**

5A. What are the different methods of printing modulus numbers in barcode for continuous stationery forms? How does a modulus check digit provides security to the product being numbered? Explain. **03**

5B. **a)** A variable printing machine (Digital Printer) is printing at a speed of 250 feet/minutes. If it is printing variable data on a continuous stationery of size 19 inch x 6 inch, then what is the total time required to print 50,000 forms. **03**

b) Differentiate between stereo lithography and fused deposition modeling 3D printing processes with neat diagrams.

5C. Draw a neat diagram of a single roll web offset machine used for continuous stationery form printing and explain the various sections of it. **04**

6A. Differentiate between followings with neat diagrams **03**

a) Single punch and Double punch continuous stationery form

b) Litho and Wheel perforation

c) Carbonless and Thermal Paper

6B. Explain the Lenticular printing process in detail. **03**

6C. Explain the printing and working principle of followings in security printing. **04**

a) Split ink fountain **b)** Fusion Screen

c) UV Ghost water mark **d)** Infra-Red black ink Barcode printing