B.E. PRINTING ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023

Subject: Specialty Printing

Total Marks: 100   **Time: 3Hr.**

WRITE THE ANSWERS FOR THE QUESTIONS UNDER EACH 'CO' SEPARATELY IN ONE PLACE

CO 1: Describe different types of specialty printing, functions etc. (K1)

Answer any 3 questions (3 x 15 = 45)

1. How 3-D printing is different from conventional printing and what are the major uses of 3-D printing? Briefly describe any 4 techniques of 3-D printing with required diagrams.   3 + 12

2. Describe the advantages and disadvantages of organic and inorganic printed electronics. Illustrate the 6-pin and 8-pin module of CR-80 smart card. Show any one card punching dimensions.   6 + 6 + 3

3. Describe the discrete and continuous bar code systems with required diagrams. Describe any 3 commonly used barcoding systems.   6 + 9

4. Describe any two indirect replicate printing processes used in printed electronics with required diagrams.   15

CO 2: Discuss currency printing, stamp printing, cheque printing, map printing etc. (K2)

Answer any 1 question (1 x 15 = 15)

5. Discuss the constituents and their relative percentages used for making MICR cheque paper. Describe the fonts that are used in MICR cheques. Write about application of flexography and gravure printing in printed electronics.   3 + 6 + 6

6. Discuss the basic steps of 3-D printing. Briefly discuss on the 3-D printing materials and the layer thickness can be achieved by different 3-D printing methods.   5 + 10

[Turn over

CO 3: Apply MICR, hologram, pcb, semiconductor lithography etc. (K3)

Answer any 2 questions (2 x 10 = 20)

7. Write about aerosol jet printing in printed electronics. Also elucidate the advantages and challenges of aerosol jet printing in comparison to ink jet printing.   8 + 2

8. Write about composite conductive polymer. Write about printable organic small molecular semiconductor.   4 + 6

9. Write about any 2 post-printing operations for semiconductor printing. Write the principle of reading MICR fonts.   7 + 3

CO 4: Analyse anti-counterfeiting features (K4)

Answer any 2 questions (2 x 10 = 20)

10. Write about the chemicals used for MICR cheque authentications and commonly used results of sensitivity tests.   6 + 4

11. Discuss any 6 security features commonly used in credit card printing.   10

12. Describe any 4 important security features in bank cheques. What is the role of SHIFT code in Code-128 family of bar code system?   8 + 2