Reg. No. :

Question Paper Code: 92011

M.E. DEGREE EXAMINATION, OCTOBER - 2014.

Elective

CAD / CAM

01PCD 510 – METROLOGY AND NON DESTRUCTIVE TESTING

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. State the role of Laser in engineering metrology.

2. What is pattern recognition?

3. Define – Sampling.

4. Give the advantages and disadvantages of SQC.

5. List the different types of NDT techniques.

6. Write down the principle of magnetic particle test.

7. Briefly narrate the production of X - Ray.

8. State the limitations of radiography.

9. How to produce the ultrasonic waves?

10. Justify the usage of acoustic emission technique in NDT.

PART - B (5 x 14 = 70 Marks)

11. (a) (i)   Explain the Tool Maker's microscope with necessary sketch.   (10)

       (ii) Describe the role of microprocessors in metrology.   (4)

Or

(b) With necessary sketches, describe how machine vision technology is used in measuring systems. (14)

12. (a) Discuss the various control charts for variables and fraction defectives. (14)

Or

(b) (i) What is ABC standard? Explain in detail. (10)

(ii) Briefly write about confidence and tolerance limit. (4)

13. (a) With necessary illustrations, describe how defects are identified by using liquid penetrants and also narrate its merits and demerits. (14)

Or

(b) Expain in detail the production of magnetic fields, principle, operation of magnetic particle test. Also give its merits, demerits and applications. (14)

14. (a) (i) Discuss the various sources of X- rays. (7)

(ii) Explain the film characterisation technique in detail. (7)

Or

(b) Discuss the operational characteristics of X- ray test and also state its applications. (14)

15. (a) Explain the different types of ultrasonic waves and also explain the pulse eco method in detail. (14)

Or

(b) Discuss the acoustic emission technique with necessary sketch and also state its applications, merits and demerits. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) Discuss the various industrial applications of coordinate measuring machine. (10)

Or

(b) Explain the various NDT applications in railways. (10)

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