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**BTECH**  
**(SEM VI) THEORY EXAMINATION 2021-22**  
**NON DESTRUCTIVE TESTING**

**Time: 3 Hours****Total Marks: 100****Note:** Attempt all Sections. If you require any missing data, then choose suitably.**SECTION A****1. Attempt all questions in brief.****2\*10 = 20**

Qno	Questions	CO
(a)	Define NDT.	1
(b)	Explain the meaning of visual inspection.	1
(c)	Explain the function of penetrant in liquid penetrant testing.	2
(d)	Describe the applications of magnetic particle testing.	2
(e)	Illustrate Thomson scattering.	3
(f)	Explain Crompton's effect.	3
(g)	Describe Snell's law.	4
(h)	Discuss the advantages of ultrasonic testing.	4
(i)	Discuss the scope of eddy current inspection.	5
(j)	Describe the electromotive force.	5

**SECTION B****2. Attempt any three of the following:****10\*3 = 30**

Qno	Questions	CO
(a)	Explain the difference between destructive and non-destructive testing methods. Also describe about various types of devices used in visual inspection.	1
(b)	Illustrate the various steps involved in liquid penetrant testing in detail.	2
(c)	Describe the advantages of $\gamma$ -ray radiography over X-ray radiography. Also explain the precautions against radiation hazards.	3
(d)	Summarize about different types of probes used in ultrasonic testing.	4
(e)	Illustrate holography and thermography in detail.	5

**SECTION C****3. Attempt any one part of the following:****10\*1 = 10**

Qno	Questions	CO
(a)	Illustrate: (i) Classification of NDT methods in detail. (ii) Scope and limitations of NDT methods	1
(b)	Illustrate: (i) Visual inspection in welding (ii) Advantages and limitations of visual inspection	1



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4. Attempt any *one* part of the following: 10 \*1 = 10

Qno	Questions	CO
(a)	Summarize (i) Zyglo test (ii) Required properties of penetrants	2
(b)	Summarize the principle of magnetic particle testing. Also summarize the scope, advantages and limitations of magnetic particle testing.	2

5. Attempt any *one* part of the following: 10\*1 = 10

Qno	Questions	CO
(a)	Illustrate the principle, equipment and methodology used in X -ray radiography test with neat sketch.	3
(b)	Illustrate the sources of radiation in radiographic testing. Also illustrate coherent scattering and digital radiography.	3

6. Attempt any *one* part of the following: 10\*1 = 10

Qno	Questions	CO
(a)	Explain the principle, equipment and methodology used in ultrasonic testing.	4
(b)	Describe A scan, B scan and C scan representation of ultrasonic inspection data.	4

7. Attempt any *one* part of the following: 10\*1 = 10

Qno	Questions	CO
(a)	Illustrate the working principle of eddy current inspection. Also Illustrate the applications and limitations of eddy current inspection.	5
(b)	Illustrate the types of probes used in eddy current testing method. Also analyze different factors that affect eddy currents.	5