INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad -500 043

MECHANICAL ENGINEERING
TUTORIAL QUESTIONBANK

Course Name	**NON DESTRUCTIVE TESTING**
Course Code	AME526
Semester	IV
Branch	Mechanical Engineering
Year	2018 –2019
Course Faculty	Mr. A Venuprasad, Assistant Professor, Mr. A Anudeep Kumar, Assistant Professor

OBJECTIVES:
The course should enable the students to:

I	Apply the techniques of surface non destructive techniques testing methods.
II	Apply of ultrasonic, radiographic techniques.
III	Understand advanced NDT technique.
IV	Understand the relevant non-destructive testing methods for various engineering practice.

COURSE LEARNING OUTCOMES:
Students, who complete the course, will have demonstrated the ability to do the following:

AME526.01	Understand the visual examination techniques in direct and indirect methods for NDT.
AME526.02	Remember the various equipment available for the visual inspection and the codes and standards for non-destructive testing.
AME526.03	Apply the liquid penetrant test that can be used for effective identification of surface cracks in metals. .
AME526.04	Apply the codes and standards applicable for the liquid penetrant testing in the classification of NDT
AME526.05	Understand the principle of magnetic particle testing and the advantages and limitations of the magnetic particle testing equipment and process.
AME526.06	Understand the principle of ultrasonic testing and identify the suitable methods for conducting non-destructive testing using the ultrasonic testing equipment.
AME526.07	Evaluate the interpretation procedures for NDT by ultrasonic testing along with its applications.
AME526.08	Understand transmission and pulse-echo methods of ultrasonic testing.
AME526.09	Evaluate and apply ultrasonic testing and acoustic emission testing and for various particle applications.
AME526.10	Understand the working principle, advantages, limitations and applications of X-ray film in radiography testing.
AME526.11	Remember X-ray films used in industrial radiography and describe the stage of development of X-ray films in radiography testing.
AME526.12	Apply the knowledge of radiographic testing method for the NDT of metals for knowing the defects internally present in the metals.
AME526.13	Remember the variables and the radiographic image quality improving techniques along with the safety norms to be considered for radiation effects
AME526.14	Understand various process during interaction of X-ray with matter.
AME526.15	Understand the working principle, advantages, limitations and applications of various advanced radiography techniques viz fluoroscopy testing, xerography, computed tomography.
AME526.16	Understand the principle of phase array and its technique utilized for the NDT of materials along with the equipment for phase array.
AME526.17	Remember the verification for flow existence and position for reporting and applications of the phase array.
AME526.18	Understand the techniques and interpretation of radiography in the field of phase array techniques and various applications of the process.
AME526.19	Remember the special radiographic techniques and the various advantages and limitations of the processes.
AME526.20	Understand the acoustic emission inspection method principle and understand its various applications.

TUTORIAL QUESTION BANK

UNIT – I			
SURFACE NDE METHODS			
PART - A (SHORT ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Define the non- destructive testing?	Remember	AME526.01
2	What are the objectives of noon- destructive testing?	Understand	AME526.01
3	List any four uses of NDT methods.	Remember	AME526.01
4	What are purposes of material testing? .	Remember	AME526.01
5	Name any four commonly employed destructive tests.	Understand	AME526.01
6	What are the advantages of non- destructive testing?	Remember	AME526.01
7	List any four limitations of non-destructive testing?	Understand	AME526.02
8	What do you mean by visual inspection?	Remember	AME526.02
9	Distinguish between aided and unaided visual testing.	Remember	AME526.04
10	List any six optical aids that are being used in visual inspection.	Understand	AME526.02
11	What is the principle of liquid penetrant testing?	Remember	AME526.03
12	What types of defects can be detected in a liquid penetrant test?	Understand	AME526.03
13	What are the different methods of penetrant application?	Remember	AME526.03
14	What is meant by dwell and development time with respect to liquid penetrant testing?	Remember	AME526.03
15	List any four typical defects that can be detected with liquid penetrant testing and their indications.	Remember	AME526.05
16	Difference between the fluorescent and visible penetrants?	Understand	AME526.04
17	List any four desirable characteristics of a good developer.	Remember	AME526.05
18	List out any six commonly used non – destructive testing methods/ techniques.	Remember	AME526.03
19	List the basic elements in NDT methods?	Understand	AME526.03
20	What is the Use of the telescopes and periscopes as a visual inspection aid?	Understand	AME526.01
PART - B (LONG ANSWER QUESTIONS)			
1	Compare and contrast destructive and non- destructive testing methods.	Understand	AME526.01
2	Enlist, in detail various non- destructive testing methods/techniques.	Understand	AME526.01
3	Compare and contrast the principles, characteristics detected, advantages, limitations applications of visual inspection and liquid penetrant testing.	Understand	AME526.03
4	(a) Explain the principle and types of visual testing method. (b) Bring out the advantages, Limitations and applications of visual inspection.	Understand	AME526.04
5	Explain the principle of liquid penetrant testing with neat sketch. Also bring out the advantages and limitations of the liquid penetrant testing.	Remember	AME526.04
6	Explain the liquid penetrant testing flow chart? and write the limitations of liquid penetrant testing.	Understand	AME526.04
7	Discuss about the surface preparation, dwell or penetrant time and removal of excess penetrant.	Understand	AME526.05
8	Discuss about the post- emulsification method, solvent removal method and application of developer liquid penetrant testing?	Understand	AME526.04
9	Write about examination, interpretation and evaluation process in liquid penetrant testing.	Understand	AME526.04
10	Explain about advantages, limitations and applications of Magnetic particle testing.	Remember	AME526.05
11	Explain in details various steps involved in magnetic particle testing?	Remember	AME526.05

12	Discuss about longitudinal magnetization, and circumferential magnetization in magnetic particle testing.	Remember	AME526.04
13	Explain about dry and wet particle inspection techniques in magnetic particle testing.	Understand	AME526.03
14	Explain about magnetization equipment, portable power supplies, and lighting equipment.	Understand	AME526.04
15	Explain what are the equipment used in determination of magnetic field strength and direction.	Understand	AME526.05
16	Write on the following portable magnetization equipments : (a) Permanent magnet (b) Electromagnetic Yokes (c) Prods	Remember	AME526.01
17	Explain the working of wet horizontal type magnetization equipment used in magnetic article testing.	Understand	AME526.02
18	Explain the about different type of magnetic particles used in magnetic particle testing?	Remember	AME526.03
19	Compare and contrast the applicability and capability of various NDT methods.	Understand	AME526.04
20	(a) Explain the principle and types of visible testing of visible testing methods.	Understand	AME526.05
PART - C (ANALYTICAL QUESTIONS)			
1	Explain how the liquid penetrant test be used to detect surface discontinuities? Explain the various stages of liquid penetrant testing procedure.	Understand	AME526.04
2	Describe the purpose, types, Characteristics, and properties of penetant used in the liquid penetrant testing procedure.	Understand	AME526.05
3	Discuss on various test stations used in inspection by liquid penetrant testing.	Remember	AME526.05
4	Explain the various penetrant inspection techniques? Explain them.	Remember	AME526.04
5	Explain the process flow chart, the water- washable penetrant techniques. Also bring out its applicability, advantages and limitations.	Remember	AME526.03
6	Describe the post- emulsifiable and solvent- removable penetrant inspection techniques.	Remember	AME526.04
7	Explain the principle of magnetic particle testing with its advantages and disadvantages.	Remember	AME526.05
8	Explain the dry particle inspection techniques with simple line diagram.	Understand	AME526.04
9	Explain the inspection of crankshaft by wet particle MT inspection techniques?	Understand	AME526.05
10	Explain the principle of liquid penetrant testing with neat sketch. Also bring out the advantages and limitations of the liquid penetrant testing.	Remember	AME526.05
UNIT-II			
ULTRASONIC TESTING			
PART - A (SHORT ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	What are the Ultrasonic waves?	Understand	AME526.06
2	List the different modes of ultrasonic waves.	Understand	AME526.06
3	Differentiate between longitudinal and sher waves.	Remember	AME526.06
4	What is attenuation in Ultrasonic inspection?	Remember	AME526.07
5	What is the significance of couplant in ultrasonic testing?	Remember	AME526.07
6	State commonly used couplants.	Remember	AME526.07
7	State the advantages and disadvantages of ultrasonic inspection.	Remember	AME526.08

8	Distinguish between transmission and pulse-echo methods of ultrasonic testing.	Remember	AME526.09
9	.List the basic component used in Ultrasonic equipment.	Remember	AME526.06
10	What are the ultrasonic transducers?	Understand	AME526.08
11	List the factors influencing the selection of ultrasonic transducer.	Remember	AME526.09
12	Classify ultrasonic transducers?	Remember	AME526.09
13	What are immersion transducers?	Remember	AME526.07
14	What is non contact type ultrasonic testing?	Understand	AME526.07
15	What is the common modes data presentation in ultrasonic testing?	Remember	AME526.08
16	Distinguish between A- Scan, B-Scan, and C-Scan presentation in Ultrasonic testing (UT).	Understand	AME526.09
17	List various factors influencing ultrasonic testing.	Understand	AME526.08
18	Explain how immersion transducer differs from other transducer in ultrasonic testing?	Understand	AME526.08
19	What is mean b S/N ratio?	Understand	AME526.08
20	What is State Snell's Law?	Understand	AME526.09
PART - B (LONG ANSWER QUESTIONS)			
1	(a)Describe the basic principle of ultrasonic testing with a suitable block diagram. (b) List down advantages, limitations and applications of employing ultrasonic testing method.	Remember	AME526.06
2	(a) Explain the principle of through transmission ultrasonic testing with neat sketch? (b) How the pulse-echo method of ultrasonic inspection is carried out and also state the advantages and disadvantages of pulse echo method.	Understand	AME526.06
3	Explain various components involved in ultrasonic testing equipment with block diagram	Understand	AME526.06
4	Explain different types of ultrasonic transducer with construction and working details. (a) Brief the working principle of any one Non- Contact types ultrasonic transducers. (b) Explain the working principle of phased array transducer in ultrasonic inspection?	Understand	AME526.07
5	What is the need for angle beam inspection is carried out and also state the advantages and disadvantages of pulse echo method?	Understand	AME526.07
6	Explain the principle of time of flight diffraction (TOFD) techniques of ultrasonic testing?	Understand	AME526.07
7	Write an engineering brief about immersion ultrasonic testing.	Understand	AME526.07
8	Explain the different scan modes of ultrasonic testing. And hence discuss its applications to inspect porosity/ cavity in materials.	Remember	AME526.08
9	List and explain the various factors influencing ultrasonic testing.	Understand	AME526.08
10	Explain the following test procedure is followed in inspection of following areas? (a) Inspection of castings (b) Corrosion monitoring (c) Weld inspection.	Understand	AME526.08
11	Explain about the longitudinal waves, shear waves and surface waves in ultrasonic sonic.	Remember	AME526.09
12	Discuss about transmission method, and pulse- echo method in ultrasonic testing.	Understand	AME526.09
13	Explain about pulser, Ultrasonic transducer, couplant, display receiver/ amplifier are used in ultrasonic testing.	Understand	AME526.09
14	Explain about straight beam ultrasonic inspection and angle beam inspection method.	Remember	AME526.07
15	Explain about phased array ultrasonic inspection method, and Immersion ultrasonic method.	Remember	AME526.07

16	Explain about data presentation in ultrasonic testing (Modes of display) in ultrasonic testing.	Remember	AME526.08
17	Discuss about A- scan presentation, B- scan presentation, C- scan presentation,	Understand	AME526.09
18	Explain about limitation and application of ultrasonic testing with examples.	Remember	AME526.08
19	Explain about weld inspection by ultrasonic testing and thickness measurement by ultrasonic testing.	Understand	AME526.09
20	Explain about ultrasonic testing in inspection of casting and also explain about corrosion inspection by ultrasonic testing.	Understand	AME526.09
PART - C (ANALYTICAL QUESTIONS)			
1	What is the need for angle beam inspection is carried out and also state the advantages and disadvantages of pulse echo method?	Understand	AME526.07
2	Explain the principle of time of flight diffraction (TOFD) techniques of ultrasonic testing?	Remember	AME526.07
3	Write an engineering brief about immersion ultrasonic testing.	Understand	AME526.07
4	Explain the different scan modes of ultrasonic testing. And hence discuss its applications to inspect porosity/ cavity in materials.	Understand	AME526.08
5	List and explain the various factors influencing ultrasonic testing.	Understand	AME526.08
6	Explain about non contact ultrasonic testing in inspection of composite material.	Understand	AME526.08
7	Discuss testing procedure of ultrasonic inspection/testing. And also writes its application.	Remember	AME526.09
8	Explain about time flight diffraction (TOFD) Technique principle and steps involved in TOFD and its advantages.	Understand	AME526.09
9	Explains about piezo electric transducer un ultrasonic testing and write about transducer?	Remember	AME526.07
10	Explain the steps involved in through Transmission method in ultrasonic testing.	Remember	AME526.07
UNIT-III			
RADIOGRAPHIC TESTING			
PART - A (SHORT ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Enlist the major components of an x- ray generator.	Remember	AME526.10
2	What is the purpose of focusing cup and filters in an x-ray generator?	Remember	AME526.11
3	What are the applications of radiographic inspection?	Understand	AME526.12
4	What is crank- out the mechanism in gamma ray testing of components?	Understand	AME526.13
5	Define the term density and film speed, with respect to radiography testing.	Understand	AME526.14
6	What are intensifying screens? Write its types.	Understand	AME526.10
7	What is half- value layer in the radiography testing?	Understand	AME526.11
8	What are penetrometers? Write its types.	Remember	AME526.12
9	What is film graininess in radiography testing?	Understand	AME526.13
10	What is film contrast in radiography testing?	Understand	AME526.14
11	What is geometric unsharpness with respect to radiography?	Remember	AME526.11
12	What is need for exposure chart in radiography over film radiography?	Remember	AME526.12
13	What is the effect of radiation on the film in radiographic NDT study?	Understand	AME526.13
14	What are the advantages of computed radiography over film radiography?	Understand	AME526.14
15	Difference between computed radiography and film radiography.	Remember	AME526.10
16	What are the applications of computed radiography?	Remember	AME526.11

17	What is Compton scattering?	Remember	AME526.12
18	What is Thomson scattering?	Understand	AME526.13
19	State the inverse square law.	Remember	AME526.14
20	What is the effect of radiation on the film in radiographic NDT study?	Remember	AME526.10
PART - B (LONG ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Explain with sketch, the working principle of X- ray radiography and state its advantages, Limitations and applications.	Understand	AME526.10
2	Explain the types of radiation produced by radioactive decay (gamma ray) and their application with neat sketch.	Remember	AME526.11
3	Classify X-ray films used in industrial radiography and brief about construction of film with simple line diagram.	Understand	AME526.12
4	Explain the characteristic curve of X-ray film used in radiography testing?	Remember	AME526.13
5	Explain the stages of development od X-ray film in radiography testing.	Understand	AME526.14
6	Brief write about the following processes during interaction of X-ray with matter: (a) photoelectric effect (b) Compton scattering, (c) Pair production ,and (d) Thomson scattering.	Understand	AME526.10
7	Explain how X- rays are produced in radiography testing? Briefly write about two methods of X- ray production,	Understand	AME526.11
8	what are the different radiography techniques? Explain any one technique with neat sketch.	Understand	AME526.12
9	What is the fluoroscopy in non – destructive testing? Explain the principle with neat sketch?	Understand	AME526.13
10	Explain the working principle of X ray radiography and state its advantages, disadvantages with applications.	Understand	AME526.14
11	Explain advantages, limitations and applications of x-ray radiography testing.	Understand	AME526.11
12	Explain the gamma ray radiographic testing and also explain about gamma ray testing arrangements?	Understand	AME526.12
13	Explain about crank out mechanism for Gamma ray radiographic exposure.	Remember	AME526.13
14	Discuss the half –life of radioactive isotopes in Gamma ray testing (isotope decay rate) and write the advantages of gamma ray radiography testing.	Understand	AME526.14
15	Explains the metal foil screen and fluorescent intensifying screen (or Salt screen).	Understand	AME526.10
16	Explain the stages of film processing and development in radiography testing.	Remember	AME526.11
17	Discuss the interaction of X-rays with matter and explain about photoelectric effect, and the Compton effect.	Remember	AME526.12
18	Explain the pair production and Thomson (or raylagh) scattering in radiographic testing.	Remember	AME526.13
19	Discuss the production of X- rays and explain about characteristic X-ray, and Bremsstrahlung X ray.	Remember	AME526.14
20	Explain Inverse square law, X- ray beam attenuation and half – value layer in radiographic testing.	Remember	AME526.10
PART - C (ANALYTICAL QUESTIONS)			
1	How computed radiography differs from conventional radiography? Briefly write about the principle of operation of computed	Understand	AME526.10

	radiography.		
2	Explain the principle, advantages, limitations and applications of computed tomography.	Remember	AME526.11
3	Briefly Explain the advantages, limitations and applications of X-ray radiography testing.	Remember	AME526.12
4	Explain gamma ray radiography testing and also explain about gamma ray source and gamma ray testing arrangement?	understand	AME526.13
5	Explain about crank-out Mechanism for Gamma Ray radiographic exposure with neat sketches.	Remember	AME526.14
6	Write about Half- life of radioactive isotopes in gamma testing (Isotope Dacay Rate), and also explain about advantage of gamma ray radiography testing.	Remember	AME526.10
7	Explain construction and structure of Industrial X –Ray Film with neat sketches?	Remember	AME526.11
8	Write in detail about screen in radiography testing and explain about Metal f oil screens and Flurorescent intensifying (or Sat Screens)	Remember	AME526.12
9	Explain about various of development of a radiographic X-ray films in radiography testing .	Remember	AME526.13
10	Briefly explain about Interaction of X-rays with matter and also explain about the photoelectric effect and the Compton effect.	Remember	AME526.14
UNIT-IV			
ADVANCED NDE TECHNIQUES-I			
PART - A (SHORT ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Define phased array ultrasonic inspection technique.	Understand	AME526.15
2	List out the advantages of phased array ultrasonic inspection technique.	Understand	AME526.16
3	List out the limitations of phased array ultrasonic inspection technique.	Understand	AME526.17
4	Define fluoroscopy testing in in non-destructive evaluation.	Understand	AME526.15
5	List out the advantages of fluoroscopy testing in in non-destructive evaluation.	Understand	AME526.16
6	Enumerate limitations of xerography testing in in non-destructive evaluation.	Understand	AME526.17
7	Define radioscopy testing in in non-destructive evaluation.	Remember	AME526.15
8	List out the limitations of fluoroscopy testing in in non-destructive evaluation.	Remember	AME526.16
9	Enumerate advantages of xerography testing in in non-destructive evaluation.	Remember	AME526.15
10	Define real time radiography testing in in non-destructive evaluation.	Remember	AME526.16
11	List out the applications of fluoroscopy testing in in non-destructive evaluation.	Remember	AME526.17
12	Enumerate applications of xerography testing in in non-destructive evaluation.	Remember	AME526.15
13	Define xerography testing in in non-destructive evaluation.	Remember	AME526.16
14	Define single wall, single Image (SWSI) Technique.	Remember	AME526.17
15	Define double wall, single Image (DWSI) Technique.	Understand	AME526.15
16	Define double wall, double Image (DWSDI) Technique.	Remember	AME526.16
17	Define what is fluoroscopy?	Remember	AME526.17
18	Define what is Xerography?	Remember	AME526.15
19	Define what is computed radiography?	Remember	AME526.16
20	Discuss and compare fluoroscopy and radiography?	Remember	AME526.17

PART - B (LONG ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	AME526.16
1	Differentiate between xerography testing and fluoroscopy testing.	Understand	AME526.17
2	Briefly discuss the steps involved in computed radiography testing.	Remember	AME526.15
3	Differentiate between computed radiography and film radiography.	Remember	AME526.16
4	Briefly explain arrangement and working principle of xerography testing with a neat sketch.	Remember	AME526.17
5	Differentiate between xerography testing and computed radiography testing.	Understand	AME526.15
6	Explain computed radiography testing with a neat sketch and list out its limitations.	Understand	AME526.16
7	Briefly explain arrangement and working principle of computed radiography testing with a neat sketch.	Understand	AME526.17
8	Differentiate between xerography testing and film radiography testing.	Understand	AME526.15
9	Illustrate steps involved in xerography testing with the flow diagram and list out the limitations of it.	Understand	AME526.16
10	Briefly explain arrangement and working principle of fluoroscopy testing with a neat sketch.	Remember	AME526.17
11	Explain advanced radiography fluoroscopy (radioscopy) working principle.	Understand	AME526.15
12	Discuss advantages, limitations and applications of fluoroscopy (radioscopy).	Remember	AME526.16
13	Explain advanced radiography testing of Xerography (Xero radiography) working principle.	Understand	AME526.17
14	Explain steps involved in Xerography (Xero radiography) of advanced radiographic testing.	Understand	AME526.15
15	Discuss advantages, limitations and applications of Xerography (Xero radiography).	Understand	AME526.16
16	Explain advanced radiography testing of computer radiography working principle.	Understand	AME526.17
17	Discuss advantages, limitations and applications of computer radiography.	Understand	AME526.15
18	Discuss difference between computer radiography and film radiography.	Understand	AME526.16
19	Explain the Principle of phase array method of advanced ultrasonic testing.	Remember	AME526.17
20	Explain equipments used in phase array method and also discuss the technique are in phase array method.	Understand	AME526.15
UNIT - V			
ADVANCED NDE TECHNIQUES-II			
PART - A (SHORT ANSWER QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Define Computed Tomography in non-destructive evaluation of 2D and 3D images.	Understand	AME526.18
2	List out the advantages of Computed Tomography in non-destructive testing.	Understand	AME526.19
3	Define leak testing in non-destructive evaluation.	Understand	AME526.20
4	List out the limitations of Computed Tomography in non-destructive testing.	Understand	AME526.18
5	Define Acoustic Emission Test in non-destructive evaluation.	Remember	AME526.19
6	List out the limitations of leak testing.	Remember	AME526.20
7	Enumerate the factors influencing acoustic wave propagation and data acquisition in AE technology.	Remember	AME526.18

8	List out the applications of Computed Tomography in non-destructive testing.	Understand	AME526.19
9	Define wave propagation and wave velocity in Acoustic Emission Testing.	Understand	AME526.20
10	List out the advantages of leak testing.	Understand	AME526.18
11	Enumerate the components used in Acoustic Emission Testing setup.	Understand	AME526.19
12	Define burst acoustic emission signal.	Understand	AME526.20
13	List out the applications of leak testing.	Understand	AME526.18
14	Define continuous acoustic emission signal.	Remember	AME526.19
15	List out the stages in Acoustic Emission Testing.	Remember	AME526.20
16	List out the different data storages in Acoustic Emission Testing.	Remember	AME526.18
17	Discuss compare CT and FR in non destructive testing.	Remember	AME526.19
18	Discuss the applications of CT inspection?	Remember	AME526.20
19	Define is the computer tomography in non destructive testing.	Understand	AME526.18
20	List the components of computed tomography.	Understand	AME526.19

PART - B (LONG ANSWER QUESTIONS)

S. No	Question	Blooms Taxonomy Level	AME526.18
1	Explain the working principle of Computed Tomography with a neat sketch and list out its advantages.	Remember	AME526.19
2	Differentiate between Computed Tomography Testing and Acoustic Emission Testing.	Remember	AME526.20
3	Discuss the importance of Computed Tomography testing in non-destructive evaluation and list out its limitations.	Remember	AME526.20
4	Explain the working principle of Acoustic Emission Testing with a neat sketch and list out its advantages.	Understand	AME526.18
5	Discuss the importance of Acoustic Emission testing in non-destructive evaluation and list out its limitations.	Understand	AME526.19
6	Differentiate between Computed Tomography Testing and Leak Testing.	Understand	AME526.20
7	Explain the working principle of leak Testing with a neat sketch and list out its advantages.	Understand	AME526.18
8	Discuss the importance of Leak testing in non-destructive evaluation and list out its limitations.	Understand	AME526.19
9	Differentiate between Acoustic Emission Testing and Leak Testing.	Remember	AME526.20
10	Describe briefly burst acoustic emission signal with a neat sketch.	Understand	AME526.18
11	Differentiate between burst and continuous mode acoustic emission signal.	Understand	AME526.19
12	Describe briefly continuous acoustic emission signal with a neat sketch.	Understand	AME526.20
13	Briefly explain data analysis and data storage in Acoustic Emission Testing.	Understand	AME526.18
14	Explain inspection of weld microstructure by Acoustic Emission Testing with a neat sketch.	Understand	AME526.19
15	Explain inspection of aerospace structure by Acoustic Emission Testing.	Remember	AME526.20
16	Describe instrumentation of Acoustic Emission Testing with a neat sketch.	Remember	AME526.18
17	Briefly explain sensor and couplant used in Acoustic Emission Testing setup.	Remember	AME526.19
18	Explain factors influencing acoustic wave propagation and data acquisition in AE technology.	Understand	AME526.20
19	Discuss briefly the stages involved in Acoustic Emission Testing.	Understand	AME526.18
20	Explain four channel data acquisition in Acoustic Emission Testing with a neat sketch.	Understand	AME526.19

PART - C (ANALYTICAL QUESTIONS)			
S. No	**Question**	**Blooms Taxonomy Level**	**Course Learning Outcomes**
1	Discuss basic principle of acoustic emission test in Non – Destructive testing.	Understand	AME526.18
2	Discuss the stages and source of acoustic emission testing in non destructive testing.	Remember	AME526.19
3	Explain advantages and of limitation acoustic emission testing in advanced non destructive testing.	Remember	AME526.20
4	Discuss the factors influencing acoustic wave propagation and data acquisition.	Understand	AME526.18
5	Explain about instrumentation of acoustic emission testing of non destructive testing.	Remember	AME526.19
6	Explain the modes acoustic emission testing the transient (brust) and continuous signals	Remember	AME526.19
7	Discuss about the four channel data acquisition in acoustic emission testing and also explain about applications of acoustic emission.	Remember	AME526.19
8	Explain about computed tomography principle of non destructive testing.	Understand	AME526.20
9	Discuss the advantage, limitation and applications of computed tomography in non destructive testing.	Remember	AME526.20
10	Explain the major components are used in computed tomography and give some examples of computed tomography (CT) of Non Destructive testing?	Remember	AME526.20

Prepared by:
Mr. A Venuprasad, Assistant Professor,
Mr. A Anudeep Kumar, Assistant Professor

HOD, ME