## ASSIGNMENT FOR BTECH IN MECHANICAL- VI<sup>nd</sup>- SEM.

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60words) of 4 marks each. Part B will have 4 long answer questions of 5 marks each.

### All questions are compulsory

These Assignments should be completed and submitted in written form by the student o his/her respective Faculty/ Examiners. Assignment Submission Dates are: **JUNE** 

#### List Of Suggested Ouestions

The list of suggested questions is for students to practice. Although optional, we recommend that students solve these questions, as they will help them in preparing for exams as well as in clearing the important concepts of the subject.

### List of Practical and suggested practical's

The list of practical's should be done by the students in their Lab Sessions. These are the basic practical's, which each student should be able to do himself independently. While the list of suggested practicals are optional, but it is recommended that students should perform those practical so as to have a thorough knowledge of the subject

### **Education Delivery Schedule (EDS)**

As per University Semester scheme, the minimum contact hours of each paper has been Divided into two hours theory and practical class. The faculty will maintain this attendance paper wise for his/her batch.

SUBJECT CODE	SUBJECT NAME
BTME 1	Machine Design-II
BTME 2	Dynamics of Machines
BTME 3	Refrigeration & Air Conditioning
BTME 4	Fluid Machinery
BTME 5	Unconventional Manufacturing Processes
BTME6	Industrial Management

## Cover page of Assignment

ID NUMBER
NAME
COURSE B.TECH
STREAM MECHANICAL
SEM 6 <sup>TH</sup>
SUBJECT CODE
SUBJECT NAME

Assignments will be completed by the Student in his/her own handwriting.

#### **MACHINE DESIGN-II**

#### PART-A

- 1. What is the basic procedure in machine design ? Explain in brief.
- 2. Write short notes on the following :
  - a. Types, functions and applications of springs
  - b. End styles of springs.
- 3. The cylinder of a 4-stroke diesel engine has the following specifications : Brake power = 3.75 kW, Speed = 1000 rpm Indicated mean effective pressure = 0.35 MPa and Mechanical efficiency = 80%. Determine the diameter and length of the cylinder liner..
- 4. Explain the modified Goodman diagram for Axial and Bending stresses.
- 5. Explain the term "Damping" and give the characteristics of different types of damping.

- 1. Describe with sketches the equation of deflections for uniform straight beams on elastic foundation.
- 2. Write short notes on any four of the following :
  - a) Design Synthesis and Creativity in Design
  - b) Limits, Fits and Tolerances
  - c) Types of Keys
  - d) Rankine Buckling Load
  - e) Morgan's Colour Code ASME Code for Shaft Design

## **DYNAMICS OF MACHINES**

### PART-A

- 1. Discuss briefly the various types of belts used for the transmission of power.
- 2. Describe with the help of neat sketch, the principle of operation of an internal expanding shoe brake.
- 3. Distinguish between brakes and dynamometer.
- 4. Briefly describe the simple harmonic and parabolic motion of the follower.
- 5. Explain briefly the difference between simple, compound, reverted and Epicyclic gear trains. What are the advantages of Epicyclic gear.

- 1. Explain the effect of the gyroscopic couple on the reaction of the four wheels of vehicle?
- 2. Write short notes on any four of the following :
- a) Stability of Aeroplanes
- b) Under cutting in involute gear teeth
- c) Circular cams with flat faced follower
- d) Transmission dynamometers
- e) (e) Uniform pressure and Uniform wear

#### **REFRIGERATION & AIR CONDITIONING**

#### PART-A

- **1.** Explain the term ``Tonne of refrigeration ``.
- **2.** Why in practice a throttle valve is used in vapour compression refrigerator rather than an expansion cylinder to reduce pressure between the condenser and the evaporator?
- 3. A completely odourless refrigerant is not desirable``, discuss the statement.
- 4. Discuss the function of absorber in vapour absorption refrigeration system.
- 5. What is the difference between wet bulb temperature and thermodynamic wet bulb temperature?

- 1. Describe a centrifugal fan with the help of a neat sketch?
- 2. Explain in detail about heat pump circuits?

## **FLUID MACHINERY**

### PART-A

- 1. How is the U-tube manometer used for the measurement of fluid pressure ? Explain with a neat sketch.
- 2. Define path line, streak line and stream line. For which type of flow are these lines identical ?
- 3. What is a venturimeter ? Derive an expression for discharge through a venturimeter.
- 4. What is Momentum Correction Factor ? Briefly explain
- 5. What is dimensional analysis ? Describe Rayleigh's method for dimensional analysis?

- 1. What do you understand by turbulent flow ? What factors decide the types of flow in pipes ?
- 2. Write short notes on any four of the following :
- a) Relative Equilibrium
- b) Energy Correction Factor
- c) Electromagnetic Flow Meter
- d) Dimensionless Numbers
- e) Fluidization

#### **UNCONVENTIONAL MANUFACTURING PROCESSES**

#### PART-A

- 1. Why directional solidification is necessary? How it helps in the production of sound castings?
- 2. What are the factors through which directional solidification of castings can be controlled?
- 3. Write a short note on Ultrasonic inspection. Discuss its advantages and disadvantages.
- 4. What isneed of carburetor an automobile ? Explain its working principle.
- 5. Differentiate between soldering and brazing. Write their applications also.
- 6. Explain the principle of resistance welding. Discuss spot welding technique with neat sketch.
- 7. What are the main materials used for making the investment pattern?

- 1. Name the various defects that occur in sand casting and state their probable causes and remedies.
- 2. What is welding? Classify the welding processes.
- 3. Explain the Electric Arc welding process with neatsketch and state its applications.

### **INDUSTRIAL MANAGEMENT**

### PART-A

- 1. What do you understand about an industrial manager ? Describe the roles of a manager
- 2. What is communication ? List all types of communications. Explain any one of them in detail.
- 3. What is training ? Briefly discuss various types of training methods, their advantages and limitations.
- 4. Define Safety management. What are the objectives of Safety management ?
- 5. Define controlling, planning and decision making. Describe the process of planning.

- 1. Define Coordination. What is the need for coordination ? List out the benifits of coordination.
- 2. Write short notes on any four of the following :
- a) Scientific Management
- b) Leadership
- c) Principles of Leasning
- d) Role of training manager
- e) Trade Union and Safety