Sai Nath University

Assignment For Diploma in Mechanical Engineering VIth Sem.

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60 words) of 4 marks each. Part B will have 2 long answer questions of 10 marks each

All questions are compulsory.

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

- -18

List Of Suggested Questions

The list of suggested questions are 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
DEME-601	Production Technology
DEME-602	Instrumentation & Controls
DEME-603	Refrigeration & Air-Conditioning System
DEME-604	Automobile Manufacturing System
DEME-605	Project
DEME-606	Practical

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER ……

NAME …… ……

COURSE Diploma Engineering……

STREAM Mechanical……

SEM 6th ……

SUBJECT CODE ……

SUBJECT NAME ……

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

DEME-601

[PRODUCTION TECHNOLOGY]

Part A

1. What do you mean by inventory management ? Explain the importance of inventory management in JIT manufacturing.
2. (a) What is product? Write difference Between Production & Productivity.
   (b)Write about:-
   1. Importance of Productivity
   2. Measurement of Productivity
   3.Techniques of Improving Productivity.
3. (a)Define Jig & Fixtures. Write Importance & Its applications.
   (b)What is Principles of Jig & Fixtures. And give two simple examples giving proper applications of simple Jigs & Fixtures for elementary machining operation.

4. What is method study ? write about method study procedure.
5. Discuss the various costs involved in inventory. What do you understand by the term EOQ?

Part B

1. (a) Write about Calculations of m/c times for turning, Drilling & Milling.
   (b) Write about Concept of simplication, standardization, specialization & Interchangeability
   2. Write short notes on any four following :
   (a) Six Sigma Concept
   (b) CPM/PERT
   (c) SAP/ERP
   (d) Motivation
   (e) Disputes Act

DEME-602
[INSTRUMENTATION & CONTROL]
Part A

1. What is motor. Explain in brief about dc motor , ac motor, Stepper motor, Servo motor.
2. Write about general description of instrumentation, Development of electronic Instrumentation and Elements of electronic instrumentation system.
3. What is LVDT and RVDT.Write about its operation
4. What is automatic control system. Write about :

   (a)Open Loop control circuits

   (b) Close- loop control circuits
5. W hat is Remote control Equipments? Write about:

   (a) Alarm units

   (b)Displays

   (c) recording and indication equipments

   (d)transmitter

   (e) telemetry.

Part B

1. How an instrumentation and control systems is implemented?
2. What is Digital controller, Pneumatic Controller& Digital computer as process controllers.

DEME-603

[REFRIGERATION AND AIR-CONDITIONING SYSTEM]

Part A

1. A refrigeration system produces 40 kg/hr of ice at 0oC from water at 25oC. Find the refrigeration effect per hour and TR. If it consumes 1 kW of energy to produce the ice, find the COP. Take latent heat of solidification of water at 0oC as 335 kJ/kg and specific heat of water 4.19 kJ/kg oC.?
2. Explain the term refrigeration. Explain the term air conditioning. How is refrigeration different from air conditioning?
3. 200 kg of ice at – 10oC is placed in a bunker to cool some vegetables. 24 hours later the ice has melted into water at 50C. What is the average rate of cooling in kJ/hr and TR provided by the ice? Assume Specific heat of ice, cp,i = 1.94 kJ/kg oC Specific heat of water, cp,w = 4.1868 kJ/kg oC Latent heat of fusion of ice at 0oC, L = 335 kJ/kg.
4. (a) Explain a flooded type evaporator
   (b) Compare a water cooled and an air cooled condenser?
5. What is Ammonia Vapour Absorption system write its comparison with Vapour compression system.

Part B

1. Write about Psychometric properties of air DBT. WBT. DPT specific & relative humidity degree of saturation and enthalpy of moist air.
   (b) What is Dalton's law of Partial pressure?

2. What is Air Conditioning systems. And write in brief about-
   1.Central air conditioning
   2 .Unitary air conditioning
   3 .Window air conditioning
   4 .Split air condition
   5. Package air conditioning
   6 .All air & water system

DEME-604
[AUTOMOBILE MANUFACTURING SYSTEM]
Part A

1. Explain the general classification of vehicles with examples.
2. (a) What is a suspension system ? What are the functions of a suspension system ?
   (b) What are the various types of Gear boxes used in automobiles ? Explain any one with a neat sketch.
3. (a) Classify the different types of brakes.
   (b) Explain the fluid coupling with a neat sketch.
4. Explain the types of tyres with the advantages of each type. Also explain how a tyre is specified. What are the remedies for reducing tyre wear ?
5. (a) Define speed ratio of a gear train.
   (b) A simple gear train has two gears which are mounted on two different shafts. Gear 1 is the driver which runs at 2000 rpm. The number of teeth on gears 1 and 2 are 30 and 60 respectively. Determine :
   (i) Speed ratio of the gear train
   (ii) Train value of the gear train
   (iii) Speed of the second gear.

Part B

1. Write short notes on any four of the following :
   (a) Pneumatic Brakes
   (b) Maintenance of Batteries
   (c) Automobile Air-conditioning
   (d) Panel Board Instruments
   (e) Axles in Automobiles

2. Explain the working principle of multi-plate clutch with neat sketch.

DEME-605
[project]

Part A

1. Introduction:This must contain background, any previous work done in the area of your project, your objective and other relevant material that may be helpful to further explain your project work.
2.The existing systemT: he study of the present system; problems in existing system.
3. System design: The proposed system; Any specific problem encountered at how you handled them.
4.Implementation of the system: Implementation issues and their justification.
5.Conclusions:Any shortcoming; your assessment of your work; comparison of your work with similar works; silent featu res of your work any feature modification. Real times applications of your project work.

Part B

The Project Report Details
The report should be prepared with the Word Processing software. They should be printed on Cover Page A4 size (Executive Bond) paper. A margin of Project Title
1.5 inches must be allowed on left hand side for A Project Report binding. The pages should be numbered. The report should be typed in the 12-font size with Submitted in partial vertical spacing of 1.5 fulfillment of the degree of Bachelor of Technology Supervisor's Student's A report should be h ard bound (light green Name Name cover with golden print on the cover). The title of the project should be clearly visible on the LOGO cover. The cover page should be as figures below. The Sai Nath University first page should be title page containing the Ranchi, Jharkhand.
title, the candidates name, Enrolment Number, (Year) and Name of University. Second page is a certificate from the supervisor. Therd p 3age is for the acknowledgement. Fourth page gives the contents of the project report. Fifth page
should be an abstract of the project followed by the chapters. You must ensure that all pages are legible. Where the project has produced software for a personal computer, you should include a CD inside the back cover of the report, along with instructions in the report how to run it. Certificate by Supervisor Acknowledgment .

DEME-606
[practical]

Part A

1. Explain in detail the principle and construction of an auto collimator with a neat sketch.
2. How is the displacement measured using laser interferometer ?
3. Define the various terminologies related with screw thread.
4. Explain any two taper measurement methods.
5. Explain the constructional features and applications of coordinate measuring machine.

Part B

1. Draw the block diagram of generalized measurement system and explain the different stages with examples.
2. Write short notes on any four of the following :
   (a) Tolerances
   (b) Angle Dekkor
   (c) Toolmaker's Microscope
   (d) Micrometer
   (e) Geometrical Tests
   (f) Gear Tooth Vernier