B. Tech. (Computer Science & Engineering)

8th Semester Scheme G

Examination, May-2025

QUALITY ENGINEERING

Paper - PEC-ME-410-G / OEC-ME-410-G

Time allowed : 3 hours]   *[Maximum marks : 75*

Note : *Attempt* **five** *questions in all.* **Question no. 1 is compulsory.** *Attempt* **four** *more questions from the Sections A, B, C & D by selecting at least* **one** *question from each section.*

1. Explain :   6×2.5=15

     (a) Quality characteristics

     (b) Law of probability

     (c) Industrial inspection

     (d) Kaizen

     (e) Quality circle

     (f) Poisson distribution

Section-A

2. Why do you mean by quality? Discuss the importance of quality in industry. Explain various parameters for industrial fitness. 15

3. What is the procedure to implement total quality control in industry? Also discuss computer aided quality control. 15

Section-B

4. Explain the concept of variation in basic statistics. Distinguish between variables and attributes data with suitable example. 15

5. What is hyper geometric distribution? Explain binomial distribution and Poisson distribution in detail. 15

Section-C

6. What do you mean by inspection? Discuss the various forms of inspection. Also explain automated inspection system. 15

7. Discuss the importance of quality systems. Explain the need of quality systems in industrial growth. Also, summarize the role of standardization. 15

Section-D

8. Why do you mean by total quality management? Explain in detail the concept and various characteristics of the TQM. 15

9. Write short notes on : 2×7.5=15

   (a) Taguchi's philosophy

   (b) Six sigma approach

B. Tech. (Computer Science & Engineering)

8ᵗʰ Semester (G-Scheme) Examination, May–2024

QUALITY ENGINEERING

Paper–PEC-ME-410-G/OEC-ME-410-G

Time allowed : 3 hours] _[Maximum marks : 75_

Note : _Question No. **1** is compulsory. Attempt total **five** questions selecting **one** question from each Unit. All questions carry equal marks._

1. Explain the following terms: 6×2.5

   (a) Quality function

   (b) Hypergeometric distribution

   (c) ISO : 9000

   (d) JIT

   (e) Frequency Distribution

   (f) 5's approach

Unit-I

2. What do you meant by Quality? Explain the importance of Quality in Industry. Also explain quality characteristics. 15

3. Explain the concept of TQC and its implementation in details. 15

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Unit-II

4. Explain the Statistical tools in Quality Control.   15

5. Explain the Binomial, Poisson and Normal Distribution with practical examples on the basics of sampling distribution.   15

Unit-III

6. What is Inspection system? Explain different forms of Inspection.   15

7. What is Standardization? Explain the need for Standardization. Also explain the history of ISO: 2000 series standard.   15

Unit-IV

8. What are basic concepts of TQM? Mention and explain the application of TQM in Industry. Also explain the role of senior management in TQM.   15

9. Explain the following terms: 2×7.5=15

     (a) Kaizen
     (b) Relevance of TQM
     (c) Kaizen

B.Tech. (Mechanical Engineering) 8th Semester
G-Scheme Examination, May-2025
INDUSTRIAL AUTOMATION
Paper - PCC-ME-402G

Time allowed : 3 hours]   [Maximum marks : 75

Note : Attempt **five** questions in all, selecting one from eaqch Unit. **Q. No.-1 is compulsory.** All questions carry equal marks.

1.   (a)   Actuators

     (b)   Importance of Robotics in future

     (c)   Automated material transport

     (d)   GT

     (e)   Part Orientation

     (f)   Modeling of manufacturing plant automation

                                                    $6 \times 2.5 = 15$

Unit-I

2. What are the basic elements of an automated system ? Explain with examples. 　　　15

3. Explain in detail the various types of feeders used in material handling system. 　　15

Unit-II

4. Explain FMS in detail with its application. What are the various issues associated with implementation of FMS. 　　15

5. Explain the following : 　　　　2×7.5=15

   (a) Process Industries verses discrete manufacturing industries.

   (b) Continuous verses Discrete control.

Unit-III

6. Explain the following in detail : 　　　2×7.5=15

   (a) Orientation devices

   (b) Product manufacturability

7. Explain the following in detail : 　　　2×7.5=15

   (a) Schmitt triggering devices

   (b) Pneumatic sensors and amplifiers

Unit-IV

8. Explain the following : 　　　　2×7.5=15

   (a) Role of Robotics in industries

   (b) Fuzzy decision and control

9. (a) Describe the industrial application of robots.

   (b) Importance of simulation for manufacturing.

   　　　　　　　　　　　　　　2×7.5=15

B.Tech. (Mechanical Engineering) 8th Semester
G-Scheme Examination, May-2025
PLANT MINTENANCE ENGINEERING
Paper - PEC-ME-404G

Time allowed : 3 hours]   [Maximum marks : 75

Note : *Attempt five questions in all. **Q. No.-1 is compulsory**.*
One question from each of the four units. All
questions carry equal marks.

1.   Discuss the following :   6×2.5=15

    (a)   Maintenance planning function

    (b)   Contractual maintenance

    (c)   Staffing in plant engineering

    (d)   Facility location importance

    (e)   Functions of spare parts management

    (f)   Barriers to standardization

3798-P-3-Q-9(25)   [P.T.O.

Unit-I

2. (a) Discuss the concept of maintenance and plant engineering with the help of box-patterned diagram. 8

   (b) Define utility and service function in detail. 7

3. (a) Discuss maintenance objectives and costs associated with it in detail. 8

   (b) Discuss decentralization in plant engineering. 7

Unit-II

4. (a) Describe reliability centered maintenance in detail with the help of neat diagram. 7

   (b) Discuss the detailed classification of maintenance systems. 8

5. (a) What is condition based maintenance ? Explain in detail. 8

   (b) Discuss hurdles in formulating maintenance strategy. 7

Unit-III

6. (a) Discuss various types of plant layout with their advantages. 8

   (b) Describe the objectives of good facility planning.. 7

7. (a) Discuss the principles of facility layout. 8

   (b) Explain the flow patterns to facilities assembly lines. 7

Unit-IV

8. Discuss the basic features of spare parts management. Also explain ABC analysis in detail. 15

9. Discuss maintenance system optimization, codification, Standardization and advantages of standardization. 15

3801

B.Tech. (Mechanical Engineering) 8th Sem. G-Scheme

Examination, May - 2025

POWER PLANT ENGINEERING

Paper - PEC-ME-412G

Time allowed : 3 hours]   [Maximum marks : 75

Note : *Question No. 1 is compulsory. Attempt a total of*
five questions, selecting one question from each unit.
All questions carry equal marks.

1. **Compulsory Question 6 parts:**   6×2.5

   (a) Name the various sources of secondary energy.

   (b) Explain PWR.

   (c) What is fuel? How electric energy is created in fuel cells.

   (d) What is the function of a surge tank in a hydroelectric station?

   (e) Explain the Geothermal power plant.

   (f) What is a surge tank?

3801-P-3-Q-9(25)   [P.T.O.

.Unit - I

2. What are the energy resources, and what are the ways of their availability?   15

3. Explain the hydroelectric power plant in detail with plotting of various curves for estimating stream flow.

    15

Unit - II

4. Explain the working of a modern power plant with the flow of sheets, also describe the supercritical pressure steam station.   15

5. Discuss the constant pressure gas turbine power plant with a neat sketch.   15

Unit - III

6. Describe the various tariff methods used for the calculation of electric energy.   15

7. Explain the principle of nuclear energy in the case of nuclear plants. Explain the CANDU reactor with a neat sketch.   15

Unit - IV

8. How solar radiation estimation is carried out? Discuss the working of solar energy collectors.   15

9. Discuss the thermoelectric power plant generation system with a neat sketch.   15

B.Tech (Mechanical Engineering) 8ᵗʰ Sem. G Scheme

Examination, May - 2025

AUTOMOBILE ENGINEERING

Paper - PEC-ME-420G

Time allowed : 3 hours]   [Maximum marks : 75

Note : **Question No. 1 is compulsory** *and attempt* **five**
questions in total selecting at least **one** *question from
each section.*

1. (a) What are self-Propelled vehicles?   6×2.5=15

    (b) What are different forms of friction materials used
         on clutch plate?

    (c) State the function of gear box in vehicle.

    (d) What is pitching in the suspension system?

    (e) What is self-energization?

    (f) What is the basic difference between a fluid
         flywheel and a torque converter?

Section - A

2. What are main components of an automobile? Describe
    all of them briefly.   15

3.   Draw neat sketch of a centrifugal clutch, and explain the construction and working of this clutch.   15

Section - B

4.   What is an overdrive? Explain its construction and discuss its working, explaining also the method of control.   15

5.   Explain the necessity of a differential in an automobile. Discuss in detail the construction and operation of the differential.   15

Section - C

6.   Explain the construction details and characteristics of leaf springs.   15

7.   What is Toe-in and Toe-out? How much toe-in is initially provided and why?   15

Section - D

8.   With the help of neat sketch explain the principle of Pneumatic brakes.   15

9.   Write short notes on: 15

(a)   Air injection system and catalytic convertor.

(b)   Positive crank case ventilation system