C–8447	Sub. Code
	82248

B.Voc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Manufacturing Technology

DESIGN OF MACHINE ELEMENTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meant by design process?
2. List the factors influencing machine design.
3. What is a shaft?
4. Define rigidity.
5. What is fastener?
6. What are Knuckle joints?
7. What is a flywheel?
8. List the various types of springs.
9. What is a bearing?
10. Define Sommerfeld number.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss about selection of materials based on mechanical properties.

Or

(b) Write a short note on the theories of failure.

12. (a) Write short notes on design of solid shafts based on strength.

Or

(b) Write a brief note on keyways and splines.

13. (a) Write a brief note on threaded fasteners.

Or

(b) Mention the differences between welded joints and riveted joints for structures.

14. (a) Discuss briefly about the optimization of helical springs.

Or

(b) Write short notes on connecting rods.

15. (a) Write a brief note on Hydrodynamic journal bearings.

Or

(b) Write shorts on Raimondi and Boyd graphs.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about the calculation of principle stresses for various load combination.

Or

(b) Write a detailed note on the design based on strength and stiffness.

17. (a) Explain in detail about the rigid and flexible couplings.

Or

(b) Explain the theory of bonded joints in detail.

18. (a) Discuss in detail about the flywheels considering stresses in rims and arms for engines and punching machines.

Or

(b) Explain the process of selection of rolling contact bearings.

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C–8449	Sub. Code
	82262

B.Voc. DEGREE EXAMINATION, APRIL 2023

Sixth Semester

Manufacturing Technology

INDUSTRIAL SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List some of the general safety rules.
2. What is a milling machine?
3. Define electron eye.
4. What is trip guard?
5. Mention some common hazards in welding and cutting.
6. What is metalizing?
7. Define cold working.
8. What is auxiliary mechanism?
9. Define electro plating.
10. What is shot blasting?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss about the principle and maintenance of turning machines in brief..

Or

(b) Write a short note on boring machines.

12. (a) Write short note on Zero Mechanical State.

Or

(b) Write a brief note on guard construction and guard opening.

13. (a) Write a brief note on arc welding and cutting.

Or

(b) Write short note on personal protective equipment.

14. (a) Write short note on feeding and cutting mechanism

Or

(b) Write a short note on hot rolling mill operation.

15. (a) Discuss briefly about the heat treatment operations.

Or

(b) Write short notes on dynamic balancing and hydro testing.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about the CNC machines.

Or

(b) Write a detailed note on the planning machine and grinding machines.

17. (a) Explain in detail about the point of operation of protective devices and machine guarding.

Or

(b) Write a detailed note on storage and handling of gas cylinders.

18. (a) Discuss in detail about the Safety in gas furnace operation.

Or

(b) Explain the detailed process of industrial waste disposal.

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