

C-3683

Sub. Code

82215

B.Voc. DEGREE EXAMINATION
MANUFACTURING TECHNOLOGY
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
First Semester
PRODUCTION TECHNOLOGY
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Tool life.
2. How can build-up edge formed during machining be avoided?
3. Write the specifications of typical lathe.
4. Mention the functions of feed rod and lead screw.
5. Compare Up Milling and down Milling.
6. Write the difference between face milling and end milling.
7. Distinguish between polishing and buffing process.

8. List some of the material of broaching tools.
9. Define abrasive slurry.
10. Why the servo controlled system is needed in EDM?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write short notes of thermal aspect in metal cutting.

Or

- (b) Distinguish between the orthogonal and oblique cutting.
12. (a) Draw the neat sketch of “Geneva Mechanism” used in turret lathe.

Or

- (b) Discuss special attachments on lathes.
13. (a) Compare plain and universal milling machine.

Or

- (b) Discuss the various types of gear finishing operations.
14. (a) Sketch a broaching tool and explain the different nomenclature.

Or

- (b) Write important factors involved in selection of grinding wheel.
15. (a) Draw the schematic layout of Abrasive Jet Machining and explain its operating characteristics.

Or

- (b) List out the three types of spark generators used in EDM. Describe THEM.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) What are the various types of cutting tool materials used in metal cutting and briefly explain about its properties?

Or

- (b) Derive the Merchant metal cutting theory with suitable diagram.

17. (a) Explain the construction and working principles of a lathe with suitable diagram.

Or

- (b) Explain about gear generation and gear finishing process with suitable diagram.

18. (a) Describe the any two methods of cylindrical grinding with neat sketch.

Or

- (b) Explain the principles of Laser Beam Machining with neat sketch and list out the advantages and disadvantages.

C-3684

Sub. Code

82225

B.Voc. DEGREE EXAMINATION

MANUFACTURING TECHNOLOGY

APRIL 2021 EXAMINATION

&

APRIL 2020 ARREAR EXAMINATION

Second Semester

**BASIC ELECTRICAL AND ELECTRONICS
ENGINEERING**

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. State Ohm's law.
2. List out the functions of inductors.
3. Differentiate series and parallel circuits.
4. List out the characteristics of single-phase systems.
5. List out the advantages of logic circuits.
6. What is binary form?
7. What is diode?

8. List any two applications of Zener diode.
9. List the reason of electric shock.
10. List out the function of transformers.

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) State and explain Thevenin's theorem.

Or

- (b) Brief about the concept of maximum power transfer.

12. (a) Explain the combination of complex impedances.

Or

- (b) Brief about steady state AC analysis of series current.

13. (a) Illustrate about various types of memory.

Or

- (b) Brief about the concept of basic logic circuits.

14. (a) Brief about Zener diode BJTs.

Or

- (b) Elaborate about breakdown characteristics.

15. (a) Discuss about magnetic circuits and magnetic field.

Or

- (b) Brief about the principles of rotating machines.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain the characteristics of capacitors and inductors.

Or

- (b) Discuss about single phase and three phase system.

17. (a) Explain about combinatorial logic circuits.

Or

- (b) Illustrate about the representation of numerical data in binary form.

18. (a) Elaborate about ideal and real transformers.

Or

- (b) Explain the function and application of synchronous machines.
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C-3685

Sub. Code

82235

B.Voc. DEGREE EXAMINATION
MANUFACTURING TECHNOLOGY
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Third Semester
EFFECTIVE EMPLOYABILITY SKILLS
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is the need for a curriculum vita?
2. Give any one of the ice breaking question.
3. Name some of the various forms of communication.
4. List some of the demerits of poor communication.
5. Define the term ice-breaking.
6. What is concensus?
7. Why is a term review conducted?
8. How is the comfort of a team ensured?

9. Name some of the managerial skills.
10. What are the demerits of a poor leader?

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) What are the various preparations that you would undergo while attending a telephonic job interview?

Or

- (b) Based on reading through the job description, how would you identify whether its suitable to apply for a job or not?

12. (a) What are the merits of good communication?

Or

- (b) Write a brief note on one to group communication.

13. (a) How essential is listening compared to verbal communication? Describe.

Or

- (b) What is conflict management? Why is it undergone?

14. (a) List the essential qualities of a team.

Or

- (b) How is the co-operation of a team identified in mid of a team work process? Explain.

15. (a) What are the essential qualities of a leader?

Or

- (b) How can you enhance motivation? Give an example.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Detail some of the very frequently asked questions in a job interview.

Or

- (b) How essential is the process of preparing a curriculum vita based on a job role? Name some the merits of doing it.

17. (a) What is a group discussion, when is it preformed? Give an example for a situation of managing a group discussion.

Or

- (b) How is a team formed? Explain with an example.

18. (a) You being selected as a team leader, your task is to frame a team for developing a new product. List the method that you adopt to frame your new team.

Or

- (b) Differentiate between the types of leadership qualities and state its merits and demerits.

C-3686

Sub. Code

82248

B.Voc. DEGREE EXAMINATION
MANUFACTURING TECHNOLOGY
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Fourth Semester
DESIGN OF MACHINE ELEMENTS
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List some factors that influence machine design.
2. State Rankine theory of failure and its limitations.
3. What is the difference between rigid and flexible coupling?
4. How is the strength of a shaft affected by the keyway?
5. Why are ACME threads preferred over square thread for power screw?
6. Name the possible mode of failure of riveted joint.
7. Define spring Index and stiffness.
8. Distinguish between close coiled and open coiled springs.
9. Plot the friction induced in various bearings based on shaft speed.
10. Classify the types of bearings.

Part B

(5 × 5 = 25)

Answer **all** questions, by choosing either (a) or (b).

11. (a) Write short note on modulus of resilience and proof resilience.

Or

- (b) Describe the common materials used in mechanical engineering design. How can the properties of steel be improved?

12. (a) Differentiate between keys and splines.

Or

- (b) A shaft of 70 mm long is subjected to shear stress of 40 Mpa and has an angle of twist equal to 0.17 radian. Determine the diameter of the shaft. Take $G = 80 \text{ Mpa}$.

13. (a) Describe in detail about caulking and fullering with neat sketch.

Or

- (b) Explain the term self-locking of power screws.

14. (a) How does the function of flywheel differ from that of governor?

Or

- (b) Explain what are the stresses set up in an IC engine connecting rod.

15. (a) Explain hydrodynamic lubrication.

Or

- (b) Explain the term dynamic load carrying capacities of rolling contact bearing.

Part C

(3 × 10 = 30)

Answer **all** questions, by choosing either (a) or (b).

16. (a) Explain the various phases in design using a flow diagram and enumerate the factors influencing the machine design.

Or

- (b) The load on a bolt consists of an axial pull of 10 kN together with a transverse shear force of 5 kN. Find the diameter of bolt required according to
- (i) Maximum principal stress theory;
 - (ii) Maximum shear stress theory;
 - (iii) Maximum principal strain theory;
 - (iv) Maximum strain energy theory and
 - (v) Maximum distortion energy theory.
17. (a) A hollow steel shaft transmits 600 kW at 500 r.p.m. The maximum shear stress is 62.4 MPa. Find the outside and inside diameter of the shaft, if the outer diameter is twice of inside diameter, assuming that the maximum torque is 20% greater than the mean torque.

Or

- (b) Design a cotter joint to connect two mild steel rods for a pull of 30 kN. The maximum permissible stresses are 55 MPa in tension; 40 MPa in shear and 70 MPa in crushing. Draw a neat sketch of the joint designed.

18. (a) Design closed coiled helical spring subjected a tensile load of magnitude varying from 2250 N to 2750 N and the axial deflection of spring for this range of load is 6 mm. Design the spring, taking the spring index as 5 and safe shear stress for material equal to 420 MPa. $G = 84 \text{ kN/mm}^2$.

Or

- (b) A single row deep groove ball bearing operating at 2000 rpm is acted by a 10 kN radial load and 8 kN thrust load. The bearing is subjected to a tight shock load and the outer ring is rotating. Determine the rating life of the bearing.