

7. Why failure occurs in bearing? CO1- U
 (a) Proper bearing selection (b) Improper lubrication
 (c) Proper mounting (d) Sufficient lubricant quantity
8. The general failure mode in the gears are CO1- U
 (a) Fatigue (b) Wear (c) Stress rupture (d) All of the above
9. Fork lift truck is used for CO1- U
 (a) lifting and lowering (b) vertical transportation
 (c) both 'a' and 'b' (d) None of the above
10. The following is used to transport materials having flat bottoms CO1- U
 (a) Belt conveyor (b) Roller conveyor
 (c) Chain conveyor (d) None of the above

PART – B (5 x 2= 10 Marks)

11. Define failure rate? CO1- U
12. What is meant by Reliability Centered Maintenance CO1- U
13. Name some of the methods of leakage monitoring CO1- U
14. List some of the inspection performed on gears CO1- U
15. List the repair methods of conveyors. CO1- U

PART – C (5 x 16= 80 Marks)

16. (a) Explain the fundamental principles of maintenance planning and their role in improving industrial efficiency. CO1 U (16)
 Or
 (b) Explain the relationship between maintenance planning and total productive maintenance (TPM) in optimizing industrial performance. CO1- U (16)
17. (a) Design a proper lubrication plan to minimize friction and extend the lifespan of industrial machines. CO2- App (16)
 Or
 (b) Develop a repair and maintenance system for railway engines to ensure smooth and safe operation. CO2- App (16)

18. (a) Utilize temperature-sensitive tapes and pistol thermometers to detect overheating issues in industrial motors and transformers. CO3- App (16)
- Or
- (b) Utilize vibration analysis and thermal imaging methods to detect potential failures in high-speed industrial gearboxes. CO3- App (16)
19. (a) Organize a maintenance plan that integrates logical fault location methods for diagnosing failures in industrial gear systems. CO4- App (16)
- Or
- (b) Apply engineering techniques to refurbish damaged gear teeth and extend the service life of industrial gearboxes. CO4- App (16)
20. (a) Organize an effective maintenance strategy using job order systems for repairing automated guided vehicles (AGVs) in warehouses. CO5- App (16)
- Or
- (b) Develop a step-by-step repair methodology for fixing electrical and mechanical issues in industrial lifting equipment. CO5- App (16)

