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Reg. No. :

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Question Paper Code: 99718

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Elective

Mechanical Engineering

19UME918- MAINTENANCE ENGINEERING

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is the third phase of equipment life cycle? CO1 - U
(a) Intrinsic (b) Design defect
(c) Wear out failure (d) None of the above
2. The ____ goes on increasing with the increase in degree of maintenance efforts CO1 - U
(a) Cost of down time (b) Cost of spares and maintenance
(c) Labor and Overhead Cost (d) All of the above
3. Maintenance that involves a system of periodic inspection and maintenance designed to keep machine in operation is called CO1 - U
(a) Total productive maintenance (b) Preventive maintenance
(c) Breakdown maintenance (d) Predictive maintenance
4. A lubricant oil is needed to run the machine ____ CO1 - U
(a) Quickly (b) With increased friction
(c) With cleanliness (d) Without noise
5. Condition monitoring is the basic for ____ maintenance. CO1 - U
(a) Shut down (b) Preventive
(c) Predictive (d) Break down

6. Wear debris analysis is related to CO1 - U
 (a) Oil analysis (b) Temperature analysis
 (c) Pressure analysis (d) None of the above
7. The general failure mode in the gears are CO1 - U
 (a) Fatigue (b) Wear (c) Stress rupture (d) All of the above
8. Which of the following is not used in testing the pitch accuracy of lead screw? CO1 - U
 (a) A negative stop (b) Slip gauge
 (c) Length bars (d) Dial gauge
9. Wheel barrows 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. State the benefits of reliability analysis in industries CO1 - U
12. What is meant by preventive maintenance approach? CO1 - U
13. What is equipment health monitoring? CO1 - U
14. Define Event tree Analysis CO1 - U
15. State few examples of material handling equipment's. CO1 - U

PART – C (5 x 16= 80 Marks)

16. (a) What do you mean by maintenance job planning? Illustrate various steps involved in maintenance job planning with example. CO2 - U (16)
 Or
 (b) List out various factors to be considered in the preparation of Maintenance budget. CO2 - U (16)
17. (a) List the pillars of TPM and how the TPM procedures lead to machine availability? CO3 - U (16)
 Or
 (b) Explain the process of Reliability centered maintenance and their application. CO3 - U (16)

18. (a) What is the principle and uses of thermograph used in industries? CO4 - U (16)
How do you analyze thermographs obtained in thermal power station?
- Or
- (b) Briefly explain the basic steps in conditional monitoring CO4 - U (16)
19. (a) Identify as a maintenance engineer describe the steps involved to CO5 - U (16)
perform the FMEA
- Or
- (b) Examine the maintenance practices for gears. CO5 - U (16)
20. (a) List the work order flow diagram with a neat sketch. CO6- U (16)
- Or
- (b) Examine the preventive maintenance strategies for Conveyors. CO6 - U (16)

