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Reg. No. :

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B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

Elective

Mechanical Engineering

15UME919 - MAINTENANCE ENGINERING

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The time elapsed from the point the machine fails to perform its function to the point it is repaired and brought into operating condition is known as   CO1- R

   (a) Down time   (b) Break Down time   (c) Both (A) and (B)   (d) Idle time

2. Calculate the failure rate of a component from the following data: Number of component tested = 750, Period of time = 1000hrs, No. of failures reported for the given period of time = 5.   CO1- R

   (a) 6.67×10^{-5} fail/hr   (b) 6.67×10^{-6} fail/hr   (c) 5.67×10^{-5} fail/hr   (d) 5.67×10^{-6} fail/hr

3. Total Productive maintenance (TPM) approach has the potential of providing almost a seamless integration between   CO2- U

   (a) Production and Quality   (b) Quality and Maintenance

   (c) Production and Maintenance   (d) All of the above

4. With the increase in preventive maintenance cost, breakdown maintenance cost   CO2- R

   (a) Increases   (b) Decreases   (c) Remain same   (d) Any of the above

5. Materials used for RTDs are   CO3- R

   (a) Nickel   (b) Tungsten   (c) Copper   (d) All the above

6. Energy Dispersive X-ray analysis (EDX) related to   CO3- R

   (a) Power   (b) Wear   (c) Torque   (d) Roughness

7. Failure Model and Effects Analysis includes   CO4- R

   (a) System& Design   (b) Service   (c) Processes   (d) All the above

8. The general failure mode in the gears are   CO4- R

   (a) Fatigue   (b) Wear   (c) Stress rupture   (d) All of the above

9. Major stages in preventive maintenance of material handling   CO5- R
   equipments

   (a) Inspection   (b) Repair   (c) Overhaul   (d) All the above

10. The primary objective of a material handling system is   CO5- R

    (a) Reduce the unit cost of production   (b) Maintain cycle time

    (c) Increase the inventory   (d) Increase the damage

PART – B (5 x 2= 10 Marks)

11. What is meant by MTBF and MTTR?   CO1-R

12. Define the term Preventive Maintenance?   CO2- R

13. What is the use of correction monitoring?   CO3- R

14. What are the methods for fault location?   CO4- R

15. Define the term Computerized Maintenance Management System (CMMS).   CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) What are the objectives of maintenance organization and what   CO1- U   (16)
       different types of organizations are in use in Indian industries?

                                    Or

    (b) What do you mean by maintenance job planning? Discuss various   CO1- U   (16)
        steps of maintenance job planning.

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17. (a) Distinguish between fixed time maintenance and connect based maintenance. Give the merits and demerits. CO2- U   (16)

Or

(b) Briefly explain the procedure for TPM.   CO2- U   (16)

18. (a) What is leakage monitoring? Explain some of the leakage mediums used for condition monitoring.   CO3-U   (16)

Or

(b) What is thermal monitoring and what thermal monitoring are used in industries. Explain principles and uses of thermograph.   CO3-U   (16)

19. (a) Briefly explain the procedure for the repair cycle of gears and lead screw.   CO4-U   (16)

Or

(b) Explain the logical fault location methods.   CO4-U   (16)

20. (a) Explain various hydraulic and pneumatic equipment used in material handling purpose.   CO5- U   (16)

Or

(b) Explain repair methods of Material Handling Equipments .   CO5- U   (16)

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