Reg. No. : | | | | | | | | | | |

Question Paper Code:49717

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2018

Elective

Mechanical Engineering

14UME917 MAINTENANCE ENGINEERING

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

(Answer all Questions)

1. Critical path method technique is used for CO1- R

   (a) Maintenance control (b) Maintenance planning

   (c) Job distribution (d) Man power allocation

2. The ratio of the number of times we can expect an event to occur to the total number of trail undertaken is known as CO1- R

   (a) Adequate performance acquirements (b) Duration of adequate performance

   (c) Reliability expressed as probability (d) Environmental or operating conditions

3. Which one of the following is an element of KAIZEN CO2- R

   (a) Team work (b) Total productive maintenance (c) Both a & b (d) 5S

4. Lights machines like watches, clocks are the applications of CO2- R

(a) Hydrostatic lubrication (b) Thin film lubrication

(c) Hydrodynamic lubrication (d) Extreme pressure lubrication

5. Thermistor is used to measure the CO3- R

(a) Temperature rise (b) Temperature fall (c) Temperature change (d) All the above

6. Wear debris analysis is used in CO3- R

(a) Vibration analysis (b) Thermography survey

(c) Oil analysis (d) Both a & c

7. Which one of the following factor is affecting the bearing performance CO4- R

(a) Hot shot phenomenon (b) Tooth profile (c) Pitch error (d) Axial run out

8. Risk priority number is the CO4- R

(a) Sum of severity, occurrence, detection ratings

(b) Product of safety factor, occurrence, detection ratings

(c) Sum of safety factor, occurrence, detection ratings

(d) Product of severity, occurrence, detection ratings

9. Which one of the following is not a material handling equipment CO5- R

(a) Fork lift (b) Conveyors (c) Crane (d) None of the above

10. Computerized Maintenance Management System includes CO5- R

(a) Development of a database (b) Analysis of available part records

(c) Feedback control system (d) All the above

PART – B (5 x 2= 10Marks)

11.	What is Mean Time Between failures (MTBF) and Mean Time To Failure (MTTF)?	CO1- R	
12.	List the various pillars of Total Productive Maintenance.	CO2- R	
13.	What are the instruments used in condition monitoring?	CO3- R	
14.	What are the benefits of fault tree diagram?	CO4- R	
15.	Mention the benefits of computers in maintenance.	CO5- R	

PART – C (5 x 16= 80Marks)

16.	(a)	Show the various objectives of maintenance planning. Derive the expression for determining Mean Time To Failure(MTTF).	CO1-App	(16)
		Or		
	(b)	Illustrate the different types and classes of maintenance organization.	CO1-App	(16)
17.	(a)	What are the steps involved in preventive maintenance? Why preventive maintenance is better than reactive maintenance?	CO2-App	(16)
		Or		
	(b)	Explain Total Productive Maintenance (TPM).	CO2-U	(16)
18.	(a)	What is wear debris analysis? Explain in detail about its types.	CO3-App	(16)
		Or		
	(b)	Briefly explain various methods and instruments for condition monitoring.	CO3-App	(16)
19.	(a)	Discuss in detail about the procedure for the repair cycle of gears and lead screw.	CO4-U	(16)
		Or		
	(b)	Explain the logical fault location methods.	CO4-Ana	(16)

20. (a) Explain various repair methods of conveyors, hydraulic lift and trolley. CO5-U (16)

Or

(b) Discuss the following CO5-U (16)

(i) job order system

(ii) applications of computers in maintenance