KATHMANDU UNIVERSITY
End Semester Examination
February/March, 2019

FEB 2 1 2019

Level : B. E.
Year : IV

Course : MEPP 408
Semester: I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"
[20 Q. × 1 = 20 marks]

Choose the most appropriate answer among the given choices and mark it [X].

1. Which test can be performed without skilled labour?
   [ ] Dye penetrant testing
   [ ] Visual testing
   [ ] Ultrasonic testing
   [ ] Magnetic particle test

2. Which of the following does not represent a limitation of magnetic particle testing?
   [ ] The type of materials which may be effectively tested
   [ ] The directionality of the magnetic field
   [ ] The need for demagnetization
   [ ] The ability to detect discontinuities filled with foreign material

3. Which of the following penetrants contains an emulsifying agent?
   [ ] Solvent removable
   [ ] Water washable
   [ ] Post emulsifiable
   [ ] Fluorescent

4. During radiography test, which region absorbs less radiation and transmits more?
   [ ] Low and high density regions absorb and transmit same amount of radiation
   [ ] High density region
   [ ] Low density region
   [ ] None of the above

5. Which of the following are ferromagnetic materials ?
   [ ] Aluminum, iron, copper
   [ ] Iron, copper , nickel
   [ ] Nickel, Iron, cobalt
   [ ] Copper, aluminum, silver

6. Which of the following can be used for cathodic protection:
   [ ] Al
   [ ] Cd
   [ ] Cu
   [ ] Ti

7. ABC analysis
   [ ] is meant for relative inventory control
   [ ] is a basic technique of materials management
   [ ] does not depend upon the unit cost of the item but on its annual consumption
   [ ] all of the above.

8. Objectives of corrective maintenance
   [ ] Elimination break downs
   [ ] Elimination deviations from optimum operating condition.
   [ ] Elimination unnecessary repairs
   [ ] All of the above

9. Total productive maintenance aims at
[ ] Less idle time [ ] Increase in productivity
[ ] Zero down time [ ] More Uptime

10. Difficult to monitor and very dangerous form of corrosion
[ ] Galvanic [ ] Pitting [ ] Crevice [ ] Stress

11. In which of the following drives, there is no slip
[ ] Open belt drive [ ] Crossed belt drive [ ] Rope drive [ ] Chain drive

12. Which of the following coupling is used to connect two shafts which are not parallel or which are out of line?
[ ] Flanged coupling [ ] split coupling [ ] Oldham coupling [ ] Muff coupling

13. A systematic approach for maintenance is
[ ] Problem– Diagnosis – Cause – Rectification
[ ] Problem – Cause – Diagnosis – Rectification
[ ] Problem – Measure – Diagnosis – Rectification
[ ] Problem– Diagnosis – Measure – Rectification

14. The following is (are) scheduled maintenance
[ ] Overhauling of machine [ ] Cleaning of tank
[ ] Whitewashing of building [ ] All of the above

15. Choose the wrong statement
[ ] preventive maintenance prolongs the effective life of the equipments.
[ ] preventive maintenance detects the problem at earlier stages.
[ ] preventive maintenance significantly reduces unplanned downtime.
[ ] preventive maintenance includes modifications and updating done in order to fix the problems.

16. Limitations of ultrasonic test?
[ ] Unfavorable geometries and coarse anisotropic grain structures are difficult to inspect.
[ ] Extensive technical knowledge is required for the development of inspection procedure.
[ ] Parts that are rough, irregular in shape, very small or thin or not homogenous are difficult to examine, specific probes and to interpret the inspection data.
[ ] All of the above

17. What are the principles very important for the study of eddy current test?
[ ] Permeability [ ] Conductivity
[ ] Edge effect and end effect [ ] All of the above

18. A_____ bearing supports the load acting along the axis of the shaft.
[ ] Thrust [ ] Radial [ ] Longitudinal [ ] Transversal

19. Select the incorrect statement from the following option.
[ ] Lubricant keep out dirt [ ] Lubricant act as a seal
[ ] Lubricant transmit fluid power [ ] Lubricant enhance corrosion

20. Choose wrong statement
[ ] CMMS improve maintenance efficiency
[ ] CMMS reduce maintenance costs
[ ] CMMS improved the equipment downtime by proper scheduling preventative maintenance.
[ ] CMMS provide maintenance reports in specific formats depending on the requirements.

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SECTION "B"

Attempt *ALL* the questions.

1. Define corrective maintenance approach. [3]

2. List the benefits of implementing preventive maintenance. [3]

3. Define the term computerized maintenance management system (CMMS). State the advantages of CMMS. [1+2]

4. What is work permit? Explain its importance in detail. [1+2]

5. What is job card? State the benefits of job card system. [1+2]

6. Explain with neat diagram Eddy Current Generation mechanism for eddy current testing in Non Destructive Test. [4]

7. Explain Non Destructive Magnetic Particle Testing in detail with neat diagram. [7]

8. With the help of diagram, list the factors that have to be consider for water drainage piping installation while installing air conditioner. [5]

9. List different problems in chain drive system. Explain its possible cause and suggest remedy. [5]

10. Explain type of corrosion, give example of each. [4]

11. A Water-based mill has pumps and belt drives as its major mechanical drive system. The owner of the mill wants to minimize mill downtime by formulating efficient maintenance plan. You have been recruited as a new "Maintenance Engineer" for the same job. As a Maintenance Engineer, propose overall maintenance strategy for the pump and belt drives. The owner wants to make sure that the operation and maintenance is safe for the operator and the customers. Address the safety concern as well. Mention expected outcome based on your maintenance strategy. [15]