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Question Paper Code: 49304

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

Elective

Electrical and Electronics Engineering

14UEE908- OPERATION AND MAINTENANCE OF ELECTRICAL EQUIPMENTS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

1. Industrial safety management is that branch of management which is concerned with _____ hazards from the industries.
(a) Reducing (b) Controlling (c) Eliminating (d) All of the above
2. Total productive maintenance aims at
(a) Less idle time (b) Increase in productivity
(c) Zero down time (d) None of the above
3. In DC generators iron losses are made up of:
(a) Hysteresis and friction losses (b) Hysteresis, eddy current and brush contact losses
(c) Hysteresis and eddy current losses (d) Hysteresis, eddy current and copper losses
4. In a substation the equipment used to limit short circuit current level is
(a) Series reactor (b) Coupling capacitor (c) Lightning switch (d) Isolator
5. Tap changing transformers are used for
(a) Stepping up the voltage
(b) Stepping down the voltage
(c) both stepping up and stepping down the voltage
(d) Supplying low voltage current for instruments

6. Which of the following is not a routine test on transformers?
- (a) Core insulation voltage test (b) Impedance test
(c) Radio interference test (d) Polarity test

7. Factor of Safety (FoS) is defined as _____.

- (a) $FoS = \frac{\text{Ultimate breaking Stress}}{\text{Safe working stress}}$ (b) $FoS = \frac{\text{Safe working stress}}{\text{Ultimate breaking Stress}}$
(c) $FoS = \frac{\text{Safe working stress}}{\text{Puncture strength}}$ (d) $FoS = \frac{\text{Puncture strength}}{\text{Safe working stress}}$

8. The disadvantage of transmission lines as compared to cables is

- (a) Exposure to lightening
(b) Exposure to atmospheric hazards like smoke, ice, etc.
(c) Inductive interference between power and communication circuits
(d) All of the above

9. The speed in a series motor is _____.

- (a) directly proportional to the load
(b) equal to the load
(c) inversely proportional to the load
(d) its speed is irrespective to the load

10. For which of the following applications a D.C. motor is preferred over an A.C. motor?

- (a) Low speed operation (b) High speed operation
(c) Variable speed operation (d) Fixed speed operation

PART - B (5 x 2 = 10 Marks)

11. What are the precautions to be taken before starting work on electrical installations?
12. What are different types of busbar arrangement Schemes in Substations?
13. List out the various schedules of maintenance done on transformers?
14. Why cables are not used for long distance transmission?

PART - C (5 x 16 = 80 Marks)

16. (a) State the precautions to be taken while maintaining and testing electrical equipment (16)
- Or
- (b) Explain different types and functions of committee of safety organization. (16)
17. (a) Explain the classification of substation according to application (16)
- Or
- (b) Illustrate the various steps in maintenance of circuit breakers. (16)
18. (a) What is an impulse voltage? Explain how it is possible to generate such a very high voltage, making use of DC generators and describe the procedure for an impulse test of a transformer (16)
- Or
- (b) Explain about testing of transformers. (16)
19. (a) Explain the special precautions to be taken when power lines have to cross railway tracks. (16)
- Or
- (b) Explain the procedure of cable laying. (16)
20. (a) List the essentials of good maintenance. Point out the main points to be attended to in periodical maintenance of motors. Also indicate at what intervals should motors be examined (16)
- Or
- (b) Draw a neat schematic diagram of a four point starter and explain its working. (16)
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