

Subjective questions on MDT-03E

- Q1. Why is transmission necessary in diesel engines?
- Q2. What should be the function of an ideal transmission?
- Q3. Explain briefly the transmission system being used in diesel locomotives?
- Q4. What do you understand by tractive effort?.what is its relation with rail wheel interaction?
- Q5 Write the name of five electrical sub assemblies and their role in diesel locomotives?
- Q6. What are the various electrical rotating machines? Briefly explain.
- Q7. Discuss the various problems associated with traction motors?
- Q8. What attention would you pay to traction motors during various schedules?
- Q9. What attention would you pay to the traction generator during various schedules?
- Q10.What is advantages of alternators over d.c generators?
- Q11.What is the various extra equipment provided in the diesel loco having alternator?
- Q12.What steps would you take for prevention of fire in diesel locomotives? Briefly explain.
- Q13.Describe in detail the various motors fitted in diesel locomotives.
- Q14.Discuss the various generators/alternators fitted in diesel loco?
- Q15.What attention would you pay in the overhauling of the fuel pump motor in various schedules?
- Q16.Discuss in detail the failures that may arise due to the fuel pump motor?
- Q17. What are the steps to be followed to reduce failures arises due to fuel pump motor?

Q18.What is the purpose of the excitation system in diesel locomotives?

Q19.Explain the generator load curves of the excitation system?

Q20.What are the different types of excitation system? Describe any one of the excitation systems being used in diesel locomotives?

Note: Q No. 21 to 27 write the answer based on the following condition
The driver has booked the repairs in a particular locomotive, what action would you take to rectify the following problem-

Q21. Engine Shutdown Automatically without indication and could not restart.

Q22. Hauling power poor.

Q23. Power ground on every notch

Q24. Wheel slip on every notch.

Q25. loco giving jerk on 1st notch and load meter showing excess current.

Q26. Engine Shutdown due to low lube oil indication.

Q27 . Battery showing discharge/overcharge.

Q28. Write short notes on grid bower and dust blower motor.

Q29. Explain the main function of traction motors, fuel pump and cc motor provided in locomotives.

Q30. Explain the main function of traction alternator, Auxiliary generator and Exciter generator provided in a locomotive.

Q31. Explain the main function of the axle and tacho generator provided in ALCO locomotive.

Q32. Write a short note on AC vs DC motors for traction purposes.

Q33.What are the demerits of E Type excitation system? Briefly explain.

Q34.Briefly explains the benefits of electronic type excitation systems.

Q35.Briefly describes new items being added in microprocessor control systems.

Q36.What is the purpose of the excitation system in diesel locomotives?

Q37..Explain the generator load curve of the excitation system?

Q38.What are the different types of excitation system? Describe any one of the excitation systems being used in diesel locomotives?

Q39. Write the examples of AC-DC Transmission locomotives. Briefly explain their different parts & their location.

Q40.what do you understand by contactors .Give examples of each type of contactors.

Q41. Briefly explain the various types of contactors used in ALCO locomotives.

Q42. Write the name and location of various types of breakers used in ALCO locomotives.

Q43.Write the full form of the following related to Hp locos
ACP, ADB,ADA,DIO,AEB,AGFB,EMD, ECC-1,EPD,IGBT,CCB,FTTM,MUSD

Q44.Write the name of various compartments of single cab WDG4/WDP4 loco and also explain the various electrical components/parts available in these compartments.

Q45.Write the function of following

- a. ECS
- b. MCOS
- c. BKT
- d. REVERSER

Q46.Briefly explains the electrical transmission of diesel loco.

Q47.Briefly explains the hydraulic transmission of diesel loco.

Q48.write short notes on FTTM & RTTM of diesel loco.

Explain the following

Q49. Fuel pump motor

Q50.CC motor

Q51. Traction motor

Q52. Traction alternator

Q53. Exciter generator

Q54. Auxiliary generator

Q55. Tacho generator

Q56. Dynamic braking blower motor

Q57. Eddy current clutch

Q58. How many compartments are in wdg3a loco write the name of various electrical equipment provided in each compartment.

Q59. Write short notes on various control cabinets of HHP loco wdg4.

Q60. Explain the following in context with wdg4/wdp4

- a. Traction motor
- b. Companion alternator

Q61. What is DEMU? How is its axle powered?

Q62. What are the various versions of DEMU? Where it has manufactured. How many persons does the DEMU carry.

Q63. Explain the salient features of 1400 hp DEMU.

Q64. Describe the salient features of 1600 hp DEMU.

Q65. What are the various safety devices provided in a DEMU? Discuss each in detail.

Q66. What do you understand by DEMU? What are its advantages in comparison to a passenger train?

Q67. Describe briefly the various train lighting systems being used in Indian railways.

Q68. What are the various advantages & disadvantages of self-generating systems?

Q69. Briefly explain the End-on generation system being used in Indian railway.

Q70 .Describe the various advantages and disadvantages of the head on generation system used in Indian railway.

Q71. Write a salient feature of SPART.

Q72 Define a battery .Explain the charging and discharging process of lead acid battery.

Q73. What are the various precautions being taken during the maintenance of the battery?

Q74.Explain briefly electro pneumatic brake.

Q75.How EP brakes different from conventional air brake systems?

Q76.Explain the working of EP brakes with the help of a schematic diagram.

Q77.How Aux gen. is driven in GM loco?

Q78.Explain the reason for power ground from the traction motor in ALCO loco.

Q79. Write the working principle of DEMU.

Q80. Write the various equipment present in a loco pilot cab of DEMU.

Q81. Write the various electrical equipment present in a back panel of DEMU.

Q82. Write the various equipment present in a Engine room of DEMU.

Q83. write the various capacities of batteries being used in train lighting systems .

Q84. Write the various components of the train lighting system. Explain the working of a self generating system.

Q85. What is the various ratings of alternators being used in train lighting systems?

Q86. Discuss the various coach light fittings with their rating.

Q87. Write the full form of the following related to train lighting.
ET, PCB, OVR, BJT, EFT, EOG, AH, POH, ELU, A.C

Q88. Complete the following abbreviations.
R.P.M, H.R.C, ELU, DFB, IGBT, MCB, PELE

Q89.What is alternator. & explain its usage in coaches.

Q90.Explain the major parts of 4.5kw Alternator.

Q91.What are the safety items to be checked for TL coaches under frame.

Q92. What are the causes of fire in coaches on electrical accounts?

Q93.What happens when

1. When cells are connected in series
2. When cells are connected in parallel

Q94.Compare 110V & 24 V coach system.

Q95. Write down the various energy conservation measures adopted in railways?

Q96. Explain the chemical action taking place in a lead acid cell.

Q97. Write down the fire prevention measures adopted in TL coaches.

Q98.Write down the anti theft measures adopted in coaches.

Q99.What is air spring? And what is the necessity of introducing air spring for the DEMU coaches?

Q100.Draw a neat sketch of Air suspension and label its parts.