

Subjective questions on MDT-02E

- 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 are 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 curve 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:

No. 21 to 29 writes 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. Fuel oil pressure dropping

Q29. Hot engine

Q30. Write short notes on grid bower and dust blower motor.

Q31. Explain the main function of traction motors, fuel pump and cc motor provided in locomotives.

Q32. Explain the main function of traction alternator ,Auxiliary generator and Exciter generator provided in a locomotive.

Q33. Explain the main function of the axle and techno generator provided in the ALCO locomotive.

Q34. Write a short note on AC vs DC motors for traction purposes.

- Q35. What are the demerits of E Type excitation system? Briefly explain.
- Q36. Briefly explain the benefits of electronic type excitation system.
- Q37. Briefly describe new items being added in microprocessor control systems.
- Q38. What is the purpose of the excitation system in diesel locomotives?
- Q39. Explain the generator load curve of the excitation system?
- Q40. What are the different types of excitation system? Describe any one of the excitation systems being used in diesel locomotives?
- Q41. What is dynamic braking? Explain with the help of circuit diagrams.
- Q42. Describe the principle of working of dynamic braking?
- Q43. How is dynamic braking achieved in diesel locomotives?
- Q44. What are the auxiliary systems involved in the dynamic brake system?
- Q45. What are the changes taking place during dynamic brake? Explain with the help of a circuit diagram?
- Q46. Explain briefly the need for transition.
- Q47. How does the process of field weakening help in achieving higher loco speed?
- Q48. Why is a load box test required for a diesel locomotive?
- Q49. How is the load box test carried out? explain with the help of a circuit diagram.
- Q50. What checks are to be carried out before load box test.?
- Q51. What are various parameters checked during the load box test? Describe in brief.
- Q52. How engine H.P calculated during load box test in diesel shed /shop?
- Q53. What are the types of load boxes used in indian railways? Discuss their relative merits.
- Q54. What is a self load box test? How is it done?
- Q55. What is a blow-by test? Why and how it is done?

- Q56. What is a dry run test? Why and how it is done?
- Q57. What are the safety devices provided on diesel locomotives. Explain in brief.
- Q58. What are the various safety devices that shut down diesel locomotives? Discuss.
- Q59. Explain the various safety devices used for idle the locomotives
- Q60. Explain About the various bell/bugger/button fitted in diesel locomotives
- Q61. What are the various types of electrical control systems in diesel loco? Discuss briefly.
- Q62. Write down the demerits of the existing control system?
- Q63. Explain the microprocessor based control system? What are its advantages?
- Q64. Describe MEP block diagram? What are its various components?
- Q65. What are the salient features of microprocessor loco?
- Q66. What are the additional items provided in a microprocessor loco? Discuss
- Q67. Briefly explain the vigilance control device provided in a diesel loco?
- Q68. What is an event recorder? How does it work in a microprocessor loco?
- Q69. Discuss the various types of memories provided in microprocessor loco?
- Q70. Write the advantages of HHP loco in detail.
- Q71. What is the function of governor in diesel locomotives?
- Q72. Describe various types of governor in brief?
- Q73. Explain the difference between MCBG and Woodward governor?
- Q74. What is the MCBG governor? explain its main subassemblies in brief?
- Q75. Describe the salient features of MCBG governor?
- Q76. Explain in brief Woodward governor with mentioning its various LCP positions?
- Q77. Write about auto flasher light in detail.
- Q78. What action should be taken when the radiator fan is not working.

Q78. Describe wheel slip and its type.

Q79. Explain the advantages of dynamic brake.

Q80. write a short note on multiple unit operation of diesel locomotives.

Q81. Explain the salient features of microprocessor loco.

Q82. Explain the procedure of blowby test of diesel locomotives done in diesel sheds.

Q83. In summer there are repeated problems of hot engines. What maintenance steps would you take to overcome the problems.

Q84. what are the instructions to the driver if they experience hot engine enroute.

Q85. what are the various checks done in radiator fan and ECC to avoid hot engine cases

Q86. How the radiator fan efficiency checked to avoid hot engine cases

Q87. What are the various Electrical checks done in dead condition before the load box test?

Q88. What are the various mechanical checks done in dead condition before the load box ?

Q89. Write the function of following items in diesel loco

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

Q90. Briefly explain the electrical transmission of diesel loco.

Q91. Briefly explain the hydraulic transmission of diesel loco.

Q92. Write short notes on FTTM & RTTM of diesel loco.

Explain the following

Q93. Fuel pump motor

Q94. CC motor

Q95. Traction motor

Q96. Traction alternator

Q97. Exciter generator

Q98. Auxiliary generator

Q99. Tacho generator

Q100 .Dynamic braking blower motor

Q101` .Eddy current clutch

Q102. How many compartments are in wdg3a loco write the name of various electrical equipments provided in each compartment

.Q103. write short notes on various control cabinet of HHP loco wdg4.
Explain the following in context with wdg4/wdp4

Q104. Traction motor

Q105. Companion alternator

Q106. Auxiliary generator

Q107. D.C link

Q108. Write the difference between ALCO & GM Loco.

Q109. Explain dynamic brake grid blower assembly of GM loco.

Q110. Describe the main features of WDG4/WDP4 loco

Q111. What is DEMU? How is its axle powered?

Q112. What are the various versions of DEMU? where it has manufactured .how many persons does the DEMU carry.

Q113. Explain the salient features of 1400 hp DEMU.

Q114. Describe the salient features of 1600 hp DEMU.

Q115. What are the various safety devices provided in a DEMU? discuss each in detail.

Q116. What do you understand by DEMU? What are its advantages in comparison to a passenger train?

Q117. Describe briefly the various train lighting systems being used in indian railways.

Q118. What are the various advantages & disadvantages of self-generating systems?

Q119. Briefly explain the End on generation system being used in indian railways.

Q120 . Describe the various advantages and disadvantages of the head on generation system used in indian railways .

Q121. Write a salient feature of SPART.

Q122 Define a battery . Explain the charging and discharging process of lead acid battery.

Q123. What are the various precautions being taken during the maintenance of the battery?

Q124. Explain briefly electro-pneumatic brake.

Q125. How EP brakes different from conventional air brake system?

Q126. Explain the working of EP brakes with the help of a schematic diagram.

Q127. How Aux gen. is driven in GM loco?

Q128. Explain the reason for power ground from the traction motor in ALCO loco.

Q129. Write the working principle of DEMU.

Q130. Write the various equipment present in a loco pilot cab of DEMU.

Q131. Write the various electrical equipment present in a back panel of DEMU.

Q132. Write the various equipment present in a Engine room of DEMU.

Q133. write the various capacities of batteries being used in train lighting systems .

Q134. Write the various components of the train lighting system. Explain the working of a self-generating system.

Q135. What are the various ratings of alternators being used in train lighting systems?

Q136. Discuss the various coach light fittings with their rating.

Q137. Write the full form of the following related to train lighting.
ET, PCB, OVR, BJT, EFT, EOG, AH, POH, ELU, A.C

Q138. Complete the following abbreviations.
R.P.M, H.R.C, ELU, DFB, IGBT, MCB, PELE

Q139. What is an alternator & explain its usage in coaches.

Q140. Explain the major parts of a 4.5kw Alternator.

Q141. What are the safety items to be checked for TL coaches under frame.

Q142. What are the causes of fire in coaches on electrical accounts?

Q143. What happens when

1. When cells are connected in series
2. When cells are connected in parallel
- 3.

Q144. Compare 110V & 24 V coach system.

Q145. Write down the various energy conservation measures adopted in railways?

Q146. Explain the chemical action taking place in a lead acid cell.

Q147. Write down the fire prevention measures adopted in TL coaches.

Q148. Write down the anti-theft measures adopted in coaches.

Q149. What is an air spring? And what is the necessity of introducing an air spring for the DEMU coaches?

Q150. Draw a neat sketch of Air suspension and label its parts.

Q151. What is APU. Explain its working

Q152. Write a short note on REMMLOT.

Q153. Explain distributed power control system(DPCS) provided in indian railways.

Q154. Write the various advantages of REMMLOT in detail.

Q155. Write the full form of following abbreviations

- a. REMMLOT-----
- b. MCBG-----
- c. APU-----
- d. EMD-----
- e.TCD -----

Q156. What is the role of automatic flasher light in diesel locomotives?

Q157.What are the various types of lights provided in a diesel locomotive?

Q158.Write the various features of wdg4g loco.

Q159.Write the name of various cabins provided in wdg4g loco.

Q160.Write the name of various switches and alerter provided in the operator cabin.

Q161.What are the various steps required for engine cranking in GE Loco?

Q162..What are the various steps required for loco movement in GE Loco?

Q163.Write the complete procedure of shutting down GE loco?

Q164.What are the various Do's and DON'Ts during the operation of wdge4g loco.

Q165. Write the salient features of WDG6G.

Q166. Write the full form of the following in context with GE loco.

ECU,BCCB,FPM,MTB,LCCB,ABCB,APU,RM&D,DCP,GEVO

Q167.What are the various electrical equipment fitted in various cabins of GE locomotives?

Q168. Write a short note on VCD of WDG4G loco.

Q169.Write the full form of the following in context with GE loco.

EPA,SS,PB,GFB,PLP,CIO,AESS,ABM,EAB,AXB,EPCU

Q170.Write the name of various electrical rotating machines provided in GE loco.