

### **Objective question of Diesel trade theory MDT-03**

1. What is the full form of IC Engine?  
a) Internal combustion b) inside combustion c) integrated combustion d) none
2. In a Diesel locomotive which type of engine is used  
a) Compression ignition b) spark ignition c) forced ignition d) none
3. In how many revolution of crank shaft there is one power stroke in four stroke engine  
a) Two b) three c) four d) none
4. In how many revolution of crank shaft there is one power stroke in Two stroke engine  
a) Two b) one c) four d) none
5. In entry of fresh air inside the closed chamber of engine is called  
a) Suction b) compression c) ignition d) exhaust
6. In travel of piston from BDC to TDC of engine is called  
a) Suction b) compression c) ignition d) exhaust
7. In travel of piston from TDC to BDC of engine is called  
a) Suction b) compression c) ignition d) exhaust
8. The diagram which shows the movement of valves relative to movement of crank shaft is called  
a) Valve timing diagram b) power diagram c) diesel cycle d) none
9. The diagram which shows the movement of valves relative to movement of crank shaft is called  
a) Valve timing diagram b) power diagram c) diesel cycle d) none
10. The power assemblies used in Alco locomotives are working as  
a) Two stroke b) four stroke c) external ignition d) none
11. The power assemblies used in EMD locomotives are working as  
a) Two stroke b) four stroke c) external ignition d) none
12. The entry of fresh air inside the compression chamber for a slight duration when both the valves are open is called  
a) Scavenging action b) clean up c) cooling cycle d) thermal off load
13. What is the firing order of for engine on Alco locomotives  
a) 1-4-7-6-8-5-2-3 b) 1-4-8-5-2-3-7-6 c) 1-4-2-3-7-6-8-5 d) 1-2-3-4-5-6-7-8
14. What is the value of bore in Alco locomotives  
a) 9 inch b) 12 inch c) 9.5 inch d) 14 inch

15. What is the idle rpm of engine in Alco locomotives  
a) 405 b)505 c)700 d)400
16. What is the app. Swept volume per cylinder in Alco locomotives  
a) 12 liters b) 9 liters c) 10.5 liters d) none
17. The diesel engine used in Alco locomotives is having which shape  
a) W shape b) "I" shape c) "V" shape d) none
18. The engine base of Alco locomotive don't serve which purpose  
a) Support engine block b) serves as oil pump c) accommodate lube oil header  
d) holds the generator
19. The engine block is made up of which metal  
a) Cast iron b) Aluminium alloy c) Low carbon steel d) Mild steel
20. Which process comes first in manufacturing of engine block  
a) Welding b) shot blasting c) milling of bores d) machining
21. The maximum possible misalignment permitted in main bearing housing bore between Two adjacent bores is  
a) 0.002" b) 0.003" c) 0.004" d) none
22. The maximum possible misalignment permitted in main bearing housing bore between any Two bores is  
a) 0.002" b) 0.003" c) 0.004" d) none
23. During POH the hydraulic test of engine block is carried out at which pressure  
a) 3.5 kg/cm<sup>2</sup> b)2.5 kg/cm<sup>2</sup> c)1.5 kg/cm<sup>2</sup> d) none
24. The singular costliest part of the diesel engine is  
a) base b) crank shaft c) Cylinder head d) cam shafts
25. The crank shaft of Alco locomotives are made up of which metal  
a) chrome-molybdenum steel b) high carbon steel c) nickel steel d) none
26. What is the nominal diameter of the crank pin  
a) 6 inch b) 9 inch c) 5 inch d) none
27. One of the process which is used for surface hardening of crankshaft is  
a) nitriding b) dynamic balancing c)stress relieving d) none
28. During POH inspection of crank shaft the eccentricity is checked between how many numbers of main journals  
a) Three b) four c) Two d) none
29. During crank shaft web deflection check the maximum limit of total indicator reading is  
a) 0.0016 inch b) 0.0008 inch c) 0.0010 inch d)0.0020 inch

30. In a diesel engine the vital role of cam shaft is  
a) Opening and closing of valves    b) rotate auxiliary assemblies  
c) drive the OSTA    d) none
31. The lubrication of the cam shaft is provided by means of  
a) rifle hole in the centre    b) external jumper pipe    c) felt wick    d) none
32. The value of tappet clearance for Alco locomotive is  
a) 0.034 inch    b) 0.044 inch    c) 0.024 inch    d) none
33. How many studs are provided for fitment of Cylinder heads in Alco locomotives  
a) 7    b) 8    c) 5    d) none
34. Which part is used as replaceable wearing part in Cylinder head assembly  
a) valve seat insert    b) valve stem    c) valve spring    d) none
35. The cylinder head casting are made up of  
a) alloy cast iron    b) Aluminum alloy    c) high speed steel    d) none
36. During yearly inspection the hydraulic test of cylinder heads is carried out a pressure of  
a) 70 psi    b) 60 psi    c) 90 psi    d) none
37. The blow by test for cylinder head is carried out to test  
a) Thermal stress    b) sealing effect    c) cooling effect    d) none
38. During blow by test if leakage appears through TSC which assembly may be defective  
a) cylinder head    b) liner    c) exhaust manifold    d) none
39. During blow by test if leakage appears through sump which assembly may be defective  
a) cylinder head    b) liner    c) exhaust manifold    d) none
40. The liners in which liner does not come direct contact with the coolant are also known as  
a) dry liner    b) wet liner    c) distant liner    d) none
41. The liners in which liner remains in direct contact with the coolant are also known as  
a) dry liner    b) wet liner    c) distant liner    d) none
42. In Alco locomotives liners are made up of  
a) alloy cast iron    b) Stainless steel    c) aluminum alloy    d) none
43. Which one of these is not a major defect of liners during service  
a) wear in bore    b) loss of interference    c) cavitations erosion    d) stress

44. Which one is a reason for not using cast iron as piston material
- a) better heat conductivity than aluminum
  - b) More compressive strength than aluminum
  - c) Heavier in weight
  - d) coefficient of expansion nearly equal to that of liner
45. The joint between ring carrier and piston is welded at the crown by which method
- a) arc welding
  - b) TIG welding
  - c) Inert gas welding
  - d) none
46. Which one of these is not a function of piston ring
- a) sealing of combustion chamber
  - b) scraping down of excess lube oil
  - c) prevention of lube oil entry into combustion chamber
  - d) polishing of liner inner surface
47. Which one of these is not a part of conventional piston rings set used in Alco locomotives
- a) Barrel shaped
  - b) taper ring
  - c) square shaped
  - d) oil scraper
48. Which one of these is not an advantage of fuel efficient rings set
- a) reduction of piston ring wear
  - b) reduction of lube oil consumption
  - c) reduction of fuel oil consumption
  - d) reduction of flash point
49. In Alco locomotives piston and crankshaft are connected through means of
- a) Connecting rod
  - b) lash adjuster
  - c) cross head
  - d) none
50. The reciprocating motion of piston is converted into rotating motion of crank shaft by which part of the engine
- a) connecting rod
  - b) cam shaft
  - c) lifter assembly
  - d) none
51. Which one of the below is not a part of connecting rod assembly
- a) connecting rod
  - b) piston pin bushing
  - c) bearing shell
  - d) piston
52. Which one of above is not checked during assembly of piston ring
- a) proper sequence
  - b) ring gap
  - c) side clearance
  - d) twist
53. Which one of below is not a non destructive testing
- a) magna flux test
  - b) zyglu test
  - c) nick break test
  - d) ultra sonic testing
54. Which test is done for examination of segregation and oxidation of non ferrous materials
- a) RDP test
  - b) UTS test
  - c) Nick break test
  - d) izod charpy test
55. The portion of engine block which houses the crank shaft is called
- a) saddle
  - b) base
  - c) sump
  - d) none

56. What is a mandrel
- a) straight iron bar
  - b) fixture for dial gauge
  - c) elongation gauge
  - d) none
57. Which one is not an example of plain bearing
- a) main bearing
  - b) connecting rod bearing
  - c) TSC bearing
  - d) governor linkage bearing
58. Which one is the correct order of layers in trimetal bearing
- a) steel back-intermediate-nickel dam-overlay
  - b) steel back-nickel dam -intermediate-overlay
  - c) steel back-overlay-intermediate-nickel dam
  - d) nickel dam-steel back-intermediate- overlay
59. Which one of the above is not correct for prevention of bearing failure
- a) Maintain clean working environment
  - b) Not rubbing the polished surface
  - c) clean and free oil passage
  - d) annealing before fitment
60. Which one of above is not a type of bearing failure/defect
- a) split line fretting
  - b) creep/back fretting
  - c) static fretting
  - d) electromagnetic fretting
61. Which one of above is not a purpose of providing fuel oil system in Alco locomotive
- a) to ensure correct amount of fuel delivery
  - b) to ensure correct form of fuel delivery
  - c) to ensure correct time of fuel delivery
  - d) to maintain ratio of fuel to lube oil
62. What is purpose of providing a relief valve at outlet of fuel oil pump
- a) to prevent fuel pump motor from overloading
  - b) to maintain fuel oil pressure in the system
  - c) to boost up the outlet fuel pressure
  - d) none
63. What is the pressure setting of fuel oil relief valves in Alco locomotives
- a) 5.2 Kg/cm<sup>2</sup>
  - b) 4 Kg/cm<sup>2</sup>
  - c) 6.5 Kg/cm<sup>2</sup>
  - d) none of above

64. What is the purpose of providing a regulating valve in fuel oil system
- a) to maintain pressure in the system
  - b) to provide bypass passage to fuel
  - c) to remove dirt etc
  - d) none of the above
65. What is the pressure setting of fuel oil regulating valves in Alco locomotives
- a) 3.5 Kg/cm<sup>2</sup> b) 3 Kg/cm<sup>2</sup> c) 4.0 Kg/cm<sup>2</sup> d) none
66. What is the media used inside the filter assembly for filtration of fuel
- a) cotton b) glass wool c) paper d) wire mesh
67. At which location copper washers are used in fuel oil system of Alco locomotives
- a) between FIP and injector
  - b) between banjo pipe and FIP
  - c) between Injector and HP tube
  - d) none of above
68. A snubber valve is provided at outlet of fuel injection pump to prevent
- a) back flow of fuel oil
  - b) reduce outlet oil pressure
  - c) to reduce vibrations
  - d) none of the above
69. The full form of HP tube is
- a) High power tube
  - b) Hollow passage tube
  - c) High potential tube
  - d) high pressure tube
70. The orifice test is carried out for which purpose
- a) to ascertain the efficiency of fuel feed system
  - b) to check fuel oil consumption for a particular period
  - c) to check fuel pressure drop at load
  - d) none of the above
71. The features of a good injector nozzle don't contains
- a) good atomization
  - b) correct spray pattern
  - c) no dribbling
  - d) no hunting
72. Which one is not a probable cause of nozzle dribbling
- a) improper pressure setting
  - b) dirt stuck between valve and valve seat
  - c) valve sticking inside the body
  - d) excess fuel pressure

73. What is nozzle chattering
- a) cracking sound due to free movement of valve inside body
  - b) abnormal sound due to improper sprat pattern
  - c) sound due to turbulent flow of fuel inside nozzle
  - d) none of the above
74. Which one of the above is not a part of fuel efficient kit for Alco locomotives
- a) 17 mm FIP
  - b) modified cam shaft
  - c) large after cooler
  - d) e-beam power cables
75. The value of fuel oil pressure at full load will change as compared to at idle value
- a) increase
  - b) decrease
  - c) remain same
  - d) any of above
76. Which one in nor an advantage of supercharged engine
- a) more power with same engine dimension
  - b) carbon free components
  - c) better cooling of components
  - d) better adhesion ratio
77. Which is not a method of supercharging
- a) by means of roots blower
  - b) by using reciprocating compressor
  - c) by blower driven by exhaust gases
  - d) by inertial filters
78. The inlet casing of turbo chargers which is made up of heat resistant material is called
- a) gas inlet casing
  - b) Suction strainer
  - c) accumulator
  - d) none
79. The middle portion which supports rotor assembly is called
- a) gas inlet casing
  - b) intermediate casing
  - c) middle casing
  - d) none
80. The portion which contains the blower assembly is known as
- a) blower casing
  - b) cool cage
  - c) diamond box
  - d) propeller
81. What is not a purpose of air cushioning
- a) prevent mixing of hot air with lube oil
  - b) prevent leakage of lube oil through oil seals
  - c) cooling of hot turbine disc
  - d) to ensure free movement of rotor assembly
82. What is the purpose of after cooler in a locomotive
- a) increase air density
  - b) cooling of water
  - c) cooling of lube oil
  - d) none

83. Which test is carried out to ensure free running of rotor assembly of a TSC.  
a) run down test      b) soap test      c) dynamic balancing      d) back lash
84. Which one is not a purpose of providing a lube oil system in Alco locomotive  
a) cooling of components  
b) protection of metal surfaces  
c) keep the components clean  
d) proper burning of fuel oil
85. What is the lube oil sump capacity in Alco locomotives  
a) 1000 ltrs      b) 1270 ltrs      c) 950 ltrs      d) 1550 ltrs
86. How the compressor of locomotive gets drive power  
a) through belt      b) through shaft coupling      c) through magnetic coupling  
d) none of above
87. At what locations compressed air of compressor is not being used in locomotives  
a) Horn blowing      b) Movement of power contactors      c) operation of brake system  
d) booster air pressure for TSC
88. Air dryer is fitted at which location  
a) between MR1 and MR2  
b) between compressor and MR1  
c) between HP and LP cylinder of compressors  
d) none of the above
89. Air supply to horn is provided through which location  
a) MR1      b) MR2      c) auxiliary reservoir      d) none
90. What is an expressor  
a) Combined unit of compressor and exhauster  
b) Modified exhauster  
c) New type of compressor  
d) Device used to display parameter
91. Cylinder head's lower face is subjected to high shock stress and combustion temperature.  
a) True      b) False
92. Cylinder head's lower face forms a part of combustion chamber.  
a) True      b) False
93. Cylinder head is made by casting method.  
a) True      b) False
94. There are provisions for cooling passages in Cylinder head.  
a) True      b) False



95. The Cylinder has passages for inlet air and exhaust gases.  
a) True                                  b) False
96. There is space provided for holding fuel injection nozzle in Cylinder head.  
a) True                                  b) False
97. Valve seat insert is fitted at lower face of cylinder head.  
a) True                                  b) False
98. The valve spring are fitted using spring lock at cylinder head.  
a) True                                  b) False
99. Valve seat insert with lock rings are replaceable wearing parts of a cylinder head.  
a) True                                  b) False
100. The valve seat insert are made up of satellite or welite.  
a) True                                  b) False
101. The valve seats are fitted using interference fit method.  
a) True                                  b) False
102. The inlet valves are ground at an angle of  $30^{\circ}$ .  
a) True                                  b) False
103. After assembly cylinder head is hydraulically tested at 70 psi.  
a) True                                  b) False
104. The fitment of cylinder head is made a metal to metal joint with cylinder liner.  
a) True                                  b) False
105. The torque value of cylinder head stud is 550 foot pound.  
a) True                                  b) False
106. In 251 plus cylinder head the thickness of fire deck has been reduced for better heat transmission of heat.  
a) True                                  b) False
107. In 251 plus cylinder head the middle deck is modified by increasing number of ribs to increase mechanical strength.  
a) True                                  b) False
108. In 251 plus cylinder head water holding paucity is increased by increasing number of cores.  
a) True                                  b) False



123. Liners are having slight interference fit on upper and lower decks of the engine.  
a) True                                      b) False
124. Lack of interference fit or defect in gasket of liner may result water contamination.  
a) True                                      b) False
125. The liner bores have chrome plated inner surface and it is honey combed by electrolytic process.  
a) True                                      b) False
126. In Alco loco liners are made of high strength close grained alloy cast iron.  
a) True                                      b) False
127. Connecting rod is a member connecting piston and crankshaft and is a medium for converting the reciprocating motion to rotary motion.  
a) True                                      b) False
128. In four strokes engine during compression and power stroke the connecting rod is subjected to high compressive load.  
a) True                                      b) False
129. In four stroke engine during Suction stroke the connecting rod is subjected to high tensile stress.  
a) True                                      b) False
130. Connecting rod are having fine drilled hole from big end to small end for transporting lubricating oil.  
a) True                                      b) False
131. The connecting rod assembly consists of connecting rod, connecting rod cap, piston pin bushing, bearing shells.  
a) True                                      b) False
132. During assembly the connecting rod bolts are elongated to value of 0.015" to 0.018".  
a) True                                      b) False
133. Connecting rods are mostly made up of carbon steel or alloy steel forging.  
a) True                                      b) False
134. During maintenance and inspection big end bore dia of connecting rod is checked for which max. allowed ovality is 0.003".  
a) True                                      b) False
135. The max. allowed value of twist and bend for connecting rod of Alco locomotive is 0.002" & 0.001" respectively.  
a) True                                      b) False



150. For conducting turbo run down test in Alco locomotive, engine rpm is maintained at 4<sup>th</sup> notch and then engine is made shut down using any shut down safety device?  
a) True                                      b) False
151. For measurement of turbo run down time it considered duration at which crank shaft stopped to stopping rotation of TSC rotor assembly.  
a) True                                      b) False
152. The combined unit of compressor and exhauster is called expessor.  
a) True                                      b) False
153. The compressed air of air compressor is used for operation of brake system in locomotives.  
a) True                                      b) False
154. There is air dryer fitted between main reservoir tank one and Two.  
a) True                                      b) False
155. The purpose of air dryer is make the compressed air moisture free.  
a) True                                      b) False
156. The compressor works in range of air pressure known as loading-unloading range.  
a) True                                      b) False
157. The loading unloading range of compressor for Alco locomotive is 8~10 Kg/cm<sup>2</sup>.  
a) True                                      b) False
158. There are provisions for Suction and discharge valves at cylinder heads of compressor.  
a) True                                      b) False
159. There function of intercooler is to cool down compressed air before entering to high pressure cylinder.  
a) True                                      b) False
160. The purpose of providing a fuel oil system in locomotive is to ensure delivery of fuel in correct form, correct time and in correct amount.  
a) True                                      b) False
161. The full form of HSD is high speed diesel.  
a) True                                      b) False
162. The purpose of relief valve in fuel oil system is to protect fuel pump motor from overloading.  
a) True                                      b) False
163. The purpose of regulating valve is to maintain pressure in fuel oil system.  
a) True                                      b) False

164.The pressure of fuel is raised considerably in fuel injection pump.

a) True

b) False

165.The pressurized fuel from fuel injection pump goes to injector through high pressure tube.

a) True

b) False

166.Fuel from fuel header is supplied to fuel injection pump through banjo pipe in Alco locomotive.

a) True

b) False

167.Copper washers are used between Fuel banjo pipe and fuel injection pump for sealing purpose.

a) True

b) False

168.Dribbling is defect related to fuel injector of Alco locomotives.

a) True

b) False