SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY-VASAD

MECHANICAL ENGINEERING DEPARTMENT

EME QUIZ QUESTIONS

1. At very low temperature, the melting and boiling temperatures become equal. This temperature is known as ___.
2. The critical pressure at which latent heat of vaporisation is zero is known as ___.
3. The latent heat of steam at pressures greater than atmospheric in comparison to latent heat at atmospheric pressure is_____.
4. How Coke is produced?
5. Heating of dry steam above saturation temperature is known as _____.
6. Superheating of steam is done at constant_____.
7. If partial pressure of air and steam be pa and ps respectively in a condenser, then according to Dalton's law, the pressure in condenser is equal to_____.
8. What is equivalent evaporation?
9. The specific volume of steam with increase in pressure decreases in which manner.
10. The equivalent evaporation of a boiler is a measure to compare_____.
11. The coal requirement per kW hour generation in the thermal power plant is of the order of___.
12. Sublimation region is the region where which phases are in equilibrium.
13. What is the Stoichiometric quantity of air?
14. One kg of steam sample contains 0.8 kg dry steam; it's dryness fraction is_____.
15. If a steam sample is nearly in dry condition, then its dryness fraction can be most accurately determined by_____.
16. The specific heat of superheated steam in kcal/kg is generally of the order of___.
17. On Mollier chart, flow through turbine is represented by_____.
18. How a wet vapour can be completely specified?
19. On Millier chart, the constant pressure lines_____
20. The bituminous coal is non-caking if its carbon content is____%
21. The dry saturated steam at very low pressure, (5-10 kg/cm2) when throttled to atmosphere will become____.
22. Water at pressure of 4 kg/cm2 and 160°C temperature when exposed to atmosphere will_.
23. The dry saturated steam at very high pressure (150-200 kg/cm2) when throttled to atmosphere will become___.
24. In a throttling process which property remains constant?
25. What happens in a throttling process?
26. The pressure, at which latent heat of vaporisation of water is zero, is known as____.
27. Latent heat of dry steam at atmospneric pressure is equal to____.
28. The latent heat of steam with increase of pressure____.
29. At critical point, i.e. p=225.65 kg/cm2, the latent enthalpy of vaporisation is___.
30. At which pressure the properties of water and steam become identical?
31. While steam expands in turbines, theoretically the entropy_____.
32. Heating wet steam at constant temperature is heating it at constant___.
33. What is adiabatic process?

34. How state of vapour under saturation condition described?
35. Water boils when its vapour pressure____.
36. Mechanical equivalent of heat for 1 kcal or Joule's equivalent is equal to____kgm.
37. How boiling point is affacted with increase in pressure.
38. What is use of Orsat meter?
39. How will efficiency increase in rankine cycle?
40. What is Cochran boiler?
41. What is Lancashire boiler?
42. How can be efficiency of a thermal cycle increases?
43. One kilowatt-hour energy is equivalent to……kJ
44. Which gases has the highest calorific value?
45. Why 100% efficiency of a thermal cycle cannot be achieved?
46. How can you classify water tube boilers?
47. How can you classify Locomotive tube boilers?
48. What is Lancashire boiler?
49. What do you mean by fire tube boilers?
50. How many fire tubes in Lancashire boiler?
51. A packaged boiler is one in which various parts like firing equipment, fans, feed pumps and automatic controls are supplied in which way?
52. The biggest size of thermal power unit operating in India is_____.
53. Which coal has the highest calorific value?
54. Why crown of the fire box is made hemispherical?
55. What is the basic purpose of drum in boiler?
56. What is use of feed pumps steam boilers.
57. What happens in natural circulation type boiler?
58. In locomotive boiler, maximum steam pressure is limited to____.
59. Orientation of water tubes in a Babcock and Wilcox boiler are____.
60. Which varieties of coals are mostly used in steam boilers?
61. The diameter of tubes for natural circulation boiler as compared to controlled circulation boilers is___.
62. A boiler in India should conform to safety regulations of_____.
63. What is the function of injector in small steam plants?
64. Which boiler is best suited to meet fluctuating demands?
65. What are difference between Cornish boiler and Lancashire boiler?
66. Difference in water tube boiler in comparison to fire tube boilers?
67. What is the function of fusible plug in boilers?
68. Where the fusible plug is located in boiler?
69. Which material used for made of fusible plug for boilers?
70. Define H.P. boiler?
71. What happens in forced recirculation type boiler?
72. The ratio of heat utilised to produce steam and the heat liberated in furnace is known as___.
73. Steam in water tube boiler as compared to fire tube boiler____.
74. Thermal efficiency of well maintained boiler will be of the order____.
75. Thermal efficiency of a thermal power plant is of the order of_____.
76. Which boiler should be used produce large amount of steam at low pressure?

77. The overall efficiency of thermal power plant is____.
78. In which form heat loss takes place in a boiler?
79. The temperature of flue gases at air heater outlet should be____.
80. Why the more height of chimney in a power plant?
81. In locomotives, the draught is produced by_____.
82. Which device is used in thermal power plants to reduce level of pollution?
83. What is ues of Bomb calorimeter?
84. What is the use of economiser in boilers?
85. How can you increase thermal efficiency in boiler?
86. Natural water circulation, by convection in water tube boilers, with increase in pressure of boiler____.
87. what is IC engine
88. what is si engine
89. What is ci engine
90. What is ec engine
91. What is indicated power
92. What is brake power
93. What is mean effective pressure
94. What is specific fuel consumption
95. What is thermal efficiency
96. What is mechanical efficiency
97. What is dynamometer
98. What is stroke volume
99. What is clearance volume? Why clearance volume is required?
100. What is use of connecting rode
101. What is flywheel
102. What is use of carburetor
103. What is use of fuel pump
104. What is function of cam shaft?
105. What is piston ring?
106. What is compression ratio?
107. What is stroke?
108. What is use of fins?
109. What are the positions of valve during 4 strokes?
110. What is the working fluid for ec engine
111. Which fluid enters in first stroke of petrol engine?
112. Which fluid enters in first stroke of diesel engine?
113. What is generalized range of compression ratio for petrol and diesel engine?
114. What is crankcase?
115. What is the replacement for valve in 2-stroke engine?
116. Why mechanical efficiency of 4-stroke engine is lower than 2-stroke?
117. Why thermal efficiency of 4-stroke engine is higher than 2-stroke?

118. What is quantity governing? Where is it used in IC engine?
119. What is quality governing? Where is it used in IC engine?
120. Which is auto ignition type engine? Why?
121. How many times a crankshaft rotates, in a single thermodynamic cycle of 4 stroke engine?
122. How many times a camshaft rotates, in a single thermodynamic cycle of 4 stroke engine?
123. How many ports are used in 2-stroke engine?
124. Where does the charge enter into 2-stroke engine?
125. What is piston crown?
126. What is scavenging?
127. Which thermodynamic cycle is applicable to SI engine?
128. Which thermodynamic cycle is applicable to CI engine?
129. What is the unit of specific fuel consumption?
130. Which engine will produce more power if running at same speed? 4-Stroke or 2-stroke?
131. Which are the components of valve operating mechanism?
132. What is the formula for average piston speed
133. What is specific gravity (relative density)?
134. What is the ratio of stroke to crank radius
135. What is relative efficiency
136. What is air standard efficiency
137. What is specific output
138. A vapour absorption refrigerator uses _____ as a refrigerant.
139. Refrigeration means_____.
140. Define Refrigeration.
141. Air-conditioning means_____.
142. One ton of refrigeration means that_____.
143. One tone of refrigeration is equal to_____.
144. The COP is always_____.
145. What is a refrigerant?
146. What is the function of compressor?
147. What is the function of evaporator?
148. What is the function of condenser?
149. What is the function of expansion valve?
150. What is latent heat?
151. What is sensible heat?
152. The _____ is the reciprocal of the efficiency of a heat engine.
153. What do you mean by natural refrigerator?
154. What do you mean by mechanical refrigerator?

155. Compressor compresses the vapour at _____temperature and pressure.
156. The function of expansion valve is to _____the proper amount of liquid refrigerant.
157. A simple air cooling system is good for _____ flight speeds.
    A. low B. high
158. The refrigerant widely used in domestic refrigerators is_____.
159. In vapour absorption system why water is used as an absorbent?
160. Why freezer is placed on the top of the Refrigerator?
161. Why refrigerator is placed away from the wall?
162. Why fins are provided in the condenser?
163. Which type of insulation material is used in Refrigerator?
164. Why copper is always used as a piping in the Air-conditioning?
165. How domestic refrigerator differs from industrial refrigerator?
166. Which type of compressor is used in Domestic refrigerator?
167. Why compressor is not used in vapour absorption system?
168. What do you mean by isentropic compression?
169. In VCRS system, which refrigerant is used?
170. On which cycle, air-conditioning system works?
171. While starting the Air-condition system which components starts first.
172. Why A/C is always placed on top of the room?
173. What are the applications of air-conditioning system?
174. What are the applications of refrigeration system?
175. What is the difference between window A/C and split A/C.
176. Refrigeration effect?
177. The capacity of refrigeration system is expressed in tons of refrigeration which is a _____.
178. The temperature in the domestic refrigeration is control by_____
179. In the simple VCRS cycle, the refrigerant is in the form of dry saturated vapour before entering_____.
180. Frosting of evaporator tubes results in_____
181. In window A/C, air filter is placed_____
182. Thermostat in a room air-conditioner controls_____
183. The highest temperature during the cycle in VCRS system occurs after_____
184. The lowest temperature during the cycle in VCRS system occurs after_____
185. Which type of expansion device used in domestic refrigerator?
186. Which are elements are used for power transmitting from one shaft to another shaft?
187. Which element is used to connect two shafts?

188. Which element is used to engage or disengaged of driving and driven shaft whenever required?
189. Which coupling do not allow any relative motion between two shafts?
190. Which coupling is used to connect parallel shafts which do not in alignment and their axis are at small distance apart?
191. Which coupling used to connect two shafts whose axis intersect?
192. What is friction clutch?
193. Centrifugal clutch is friction clutch?
194. In automobile, which clutch is used to connect the engine to the driven shaft?
195. In automobile, which coupling is used to connect engine shaft to driven shaft?
196. Which clutch is required less axial pressure to disengage the clutch?
197. Which clutch is used for the transmission of power in agriculture equipment's like tractor, threaded etc?
198. ------ is used to transmit the power from driving shaft to driven shaft which may be required to start or stop frequently?
199. In centrifugal clutch the shoe moves readily outward with the help of
200. In order to slow down or stop the motion of machine which device is used
201. The energy absorbed by brakes is released in surrounding in form of
202. In centrifugal clutch, the force with which the shoe presses against the driven members is the
203. Which brake commonly used in railway trains?
204. Which brake commonly used in motor cars?
205. Which break commonly used in civil construction equipment?
206. Which coupling used to connect two shafts whose axis is perfectly in axial alignment?
207. What is the advantage of flexible couplings?
208. What is the difference between sleeves or muff coupling and split muff coupling?
209. What is the advantage of protected type flange coupling?
210. Why rubber or leather bushes are used over the pins in bush pin type flange coupling?
211. What is the advantage of universal coupling?
212. What is not required in centrifugal clutch?
213. What is the difference between friction clutch and positive contact clutch?
214. Which friction material used in band brake?
215. Which clutch is used for high-speed engagement between two shafts with minimum shock?
216. Which type of clutch is used when it is intend to engage the shafts after driving shaft attained certain speed?
217. What is the function of brake?
218. Which friction material used in making brake liner?
219. What is the function of spider in centrifugal clutch?
220. What is the disadvantage of unprotected type flange coupling?

221. What is the function of coupling and clutch?
222. Define ferrous and non ferrous materials.
223. Name the ferrous metals.
224. What is the difference between ferrous and non ferrous metal?
225. Give the uses of ferrous and non ferrous metal
226. Explain classification of various engineering materials
227. Explain various physical properties of metal.
228. Explain various mechanical properties of metal.
229. Explain various thermal properties of metal.
230. Explain various electrical properties of metal.
231. Give the detail classification of metal.
232. Write application of pig iron.
233. What is steel? Name various constituents of steel.
234. Explain classification of plain carbon steel.
235. Write application of low carbon steel.
236. Write application of wrought iron.
237. What is alloy steel?
238. Mention application of stainless steel.
239. Write short note on brass.
240. Enlist properties of aluminum. Also write its application.
241. Write short note on bronze.
242. Enlist properties of duralumin.
243. Enlist properties of lead. Also write its application.
244. Enlist properties and application of nickel.
245. Enlists properties and application of titanium.
246. Mention application of high speed steels.
247. What is the function of prime mover?
248. What is meant by thermal prime mover?
249. What is meant by Heat Engines?
250. What is meant by Internal Combustion Engines?
251. What is meant by External Combustion Engines?
252. What is the application of I C Engines?
253. State the types of IC Engines.
254. State the applications of EC Engines.
255. What is the working substance in Nuclear power Plant?
256. What is the working substance in I C Engines?
257. Why EC Engines are not used in automobiles?
258. State the names of EC Engines.
259. State the zeroth law of thermodynamics.
260. State the application of first law of thermodynamics.
261. State the first law of thermodynamics.
262. State the application of first law of thermodynamics.
263. What is Kelvin-Plank Statement?
264. State the outcome of kelvin-Planck Statement.

265. What is Clausius statement?
266. State the application of Clausius Statement
267. State the Steady Flow Energy Equation.
268. State the uses of S.F.E.E
269. Define Indicated Power and Brake Power?
270. What is meant by friction power?
271. Why B.P. is less than I.P. For IC Engines?
272. Define Mechanical Efficiency.
273. Define Indicated thermal Efficiency.
274. Why Efficiency of all engines is less than 100%?
275. Why gases have two different types of specific heat capacities?
276. State the examples of isolated system.
277. What is meant by standard atmospheric pressure?
278. What is meant by absolute pressure?
279. What is meant by gauge pressure?
280. How gauge pressure can be converted into absolute pressure?
281. State the instruments used to measure fluids pressure?
282. Define internal energy.
283. Define enthalpy.
284. Define Sink.
285. Define source.
286. What is meant by working substance?
287. State the different types of prime movers that you know.
288. State the law of conversation of energy.
289. What is meant by High Grade Energy?
290. What is meant by Low Grade Energy?
291. What is meant by path function?
292. What is meant by point function?
293. State the types of mechanical energy.
294. Define Potential energy.
295. Define kinetic energy.
296. Shafts are subjected to which types of loads?
297. Axle is subjected to which type of load?
298. Which type of drive is used for light load transmission between parallel shafts or between shafts with intersecting axes?
299. When distance between the shafts is not large then which drive is suitable?
300. Materials commonly used for belting in power transmission are:
301. Which type of belt material is waterproof and is not affected by animal oil or grease?
302. Properties of Rubber belt: -
303. In which type of belt drive the driver and follower move in same direction?

304. In which belt drive shafts are parallel but rotated in opposite direction?
305. What is the relation of speeds & diameter of the pulleys in belt drive?
306. What is the velocity ratio of the drive?
307. The section which is at the centre of the belt is neither under tension or compression is called.-
308. The ratio of driving tension in a belt just on the point of slipping is given by:-
309. V-belts require little adjustment due to which action in groove?
310. What is the advantage of wedging action in v- belts?
311. When several shafts are driven from one central shaft then what is type of drive?
312. Which types of belts give greater speed reduction ratio & greater speed?
313. Materials used for v- belts?
314. Creep phenomenon caused by which property of the belt?
315. Central, hollow, cylindrical portion of pulley is known as:
316. What is used to fasten the pulley to the shaft?
317. Slot provided on the hub to fasten the pulley to the shaft with the help of key is known as:
318. What should be the cross section of arms?
319. The periphery of pulley on which belt runs is known as:
320. To avoid running off of belt, the rim is made slightly convex is called:
321. For high torque transmission which type of drive is advisable?
322. In which type of gear teeth parallel to the axes of gears/
323. In watches, m/c tools, gear boxes in automobiles which type of gears are used?
324. Which kind of load acts on spur gear?
325. In spur gears to reduce centre distance which kind of gearing is used?
326. Why spur gears are known as slow speed gears?
327. The height of tooth above the pitch circle is known as:
328. The height of depth above the pitch circle is known as:
329. Difference between addendum and dedendum is known as:
330. In which type of gears teeth are inclined to the axis of the shaft?
331. Which gears are used to connect two intersecting shafts?
332. At what angle of intersecting shafts, the two gears have same number of teeth?
333. When shafts do not intersect & make 90˚ angle between them then which type of gears are used?
334. Which type of gears is widely used in machine tools like lathe drill, milling etc to get large velocity ratio?
335. Which mechanism transforms the circular motion into rectilinear motion?
336. Equation for power transmitted?
337. Which type of drive has the lowest efficiency?
338. In which type of drive alignment of driving and driven members should be very much precise?

339. Which type of drive has a long service life from all three drives?
340. Application of chain drives:
341. Distance along the circumference of the pitch circle is known as:
342. Which type of drive can be employed for relatively long and short centre distances?
343. In gear drive, the length of pitch dia. per tooth is known as:
344. Which type of gears is used for parallel as well as nonlinear, non intersecting shafts?
345. Surface speed in case of belt drive can be found from which equation?