116. Acetelyne in gas welding process is obtained from

(1) calcium carbonate (2) potassium carbonate

(3) potassium carbide (4) calcium carbide

117. The electron beam welding can be carried out in

(1) a shielded gas environment (2) open air

(3) vacuum (4) a pressurized inert gas chamber

118. Following is the fusion type welding process

(1) submerged are welding process (2) explosive welding process

(3) friction welding process (4) diffusion welding process

119. In hot machining tool is made of

(1) tungsten carbide (2) brass

(3) diamond (4) stainless steel

120. The increase in hardness due to cold working is called

(1) age hardening (2) induction hardening

(3) work hardening (4) flame hardening

121. In die casting, machining allowance is

(1) small (2) large (3) very large (4) not provided

122. The draft allowance on casting is generally

(1) 1 to 2 cm/m (2) 2 to 5 cm/m (3) 5 to 10 cm/m (4) 10 to 15 cm/m

123. A casting defect which occurs near the ingates as rough lumps on the surface of a casting is known as

(1) shift (2) sand wash (3) swell (4) scab

124. In sand moulding process, cores are used to
(1) directional solidification
(2) filling the cavities with molten metal
(3) to create the cavity in the casting
(4) to minimize wastage of metal

125. The symbol used for butt resistance weld is
(1) ∩ (2) | (3) ⌂ (4) □

126. The roughness grade symbol for the roughness value of 6.3 micrometers is
(1) N 9 (2) N 10 (3) N 11 (4) N 12

127. The sand used for making cores is
(1) green sand
(2) dry sand
(3) loam sand
(4) oil sand

128. Steel balls for ball bearings are generally made of
(1) stainless steel
(2) nodular cast iron
(3) free carbon steel
(4) carbon chrome steel

129. The shock resistance of steel is increased by adding
(1) nickel
(2) chromium
(3) cobalt and molybdenum
(4) nickel and chromium

130. The force that cancels the effect of the force system acting on the body is known as
(1) resultant
(2) equilibrant
(3) neutral force
(4) balancing force

131. In the method of joints for the analysis of forces in the members of the truss, the number of equilibrium equations, which are available at each joint are
(1) 2 (2) 3 (3) 4 (4) 5

132. The point in the stress versus strain diagram at which the cross sectional area of the test specimen starts decreasing is called

(1) elastic limit (2) upper yield point
(3) lower yield point (4) ultimate stress point

133. A simply supported beam A of length 1 breadth b and depth d carries a central load W. Another beam of the same dimensions carries a central load equal to 2W. The deflection of beam B will be _____ as that of A

(1) one fourth (2) half (3) double (4) four times

134. The percentage elongations for a ductile material are usually

(1) less than 5% (2) 5 to 10% (3) 10 to 15% (4) more than 15%

135. In a strained material subjected to two normal stresses, the maximum shear stress is equal to

(1) sum of the normal stresses (2) difference of the normal stresses
(3) half the sum of the normal stresses (4) half the difference of the normal stresses

136. The strain energy stored in a body when suddenly loaded is _____ the strain energy stored when same load is applied gradually.

(1) half (2) equal to (3) twice (4) four times

137. In powder metallurgy the range of pressures to which powdered metals in desired proportions are compressed in noulds is

(1) 10 to 50 bar (2) 50 to 300 bar
(3) 310 to 650 bar (4) 690 to 13750 bar

138. The velocity of the belt of mass 'm' and tension 'T', for maximum power is

(1) T/3 (2) Tx3 (3) $\sqrt{T}/3m$ (4) $\sqrt{(3m/T)}$

139. The included angle for the V-belt is usually

(1) 10 to 20° (2) 20 to 30°

(3) 30 to 40° (4) 50 to 60°

140. When the belt is stationary, it is subjected to some tension known as initial tension. The value of this tension is equal to the

(1) tension in the tight side of the belt

(2) tension in the slack side of the belt

(3) sum of the tensions on the tight side and slack side of the belt

(4) average tension of the tight and slack sides of the belt

141. The relation between the pitch of the chain (p) and pitch circle diameter of the sprocket (D) is given by

(1) $p = D \sin(90°/T)$ (2) $p = D \sin(120°/T)$

(3) $p = D \sin(180°/T)$ (4) $p = D \sin(360°/T)$

142. In roller chain the roller diameter is approximately _____ of the pitch.

(1) 5/8 (2) 6/8 (3) 7/8 (4) same as that

143. When spring index increases, the value of Wahl's stress factor

(1) increases linearly (2) decreases linearly

(3) remains same (4) increases exponentially

44. When two non intersecting and non-coplanar shafts are connected by gears, the arrangement is known as

(1) spur gearing (2) helical gearing

(3) bevel gearing (4) spiral gearing

145. Pitch point of a cam is

(1) a point on the pitch curve having minimum pressure angle

(2) a point on the pitch curve having maximum pressure angle

(3) any point on the pitch curve

(4) any point on the pitch circle

146. The ratio of hoop stress to longitudinal stress is

(1) 0.5 (2) 1 (3) 2 (4) 3

147. The shaft A is solid of diameter 100 mm and shaft B is hollow with outer diameter 100 mm and inner diameter 50 mm and both of them are made of same material. The torque transmitted by shaft B is _____ as that of shaft A.

(1) 1/8 (2) 1/6 (3) 13/12 (4) 15/16

148. Steady flow energy equation for a compressor is

(1) $w = h_2 - h_1$ (2) $w = h_1 - h_2$ (3) $Q = h_1 - h_2$ (4) $h_1 = h_2$

149. Work done in a flow process is

(1) pv (2) $\int pdv$ (3) $\int vdp$ (4) $-\int vdp$

150. The hyperbolic process is governed by

(1) Boyle's law (2) Charles' law (3) Avogadro's law (4) Gay-Lussac law

151. Reversed Joule cycle is known as

(1) Rankine cycle (2) Carnot cycle

(3) Bell-Coleman cycle (4) Stirling cycle

152. For same heat input and compression ratio, the order of efficiency of Otto, Diesel and Dual cycles is

(1) $\eta_{Otto} > \eta_{Diesel} > \eta_{Dual}$ (2) $\eta_{Otto} > \eta_{Dual} > \eta_{Diesel}$

(3) $\eta_{Diesel} > \eta_{Dual} > \eta_{Otto}$ (4) $\eta_{Dual} > \eta_{Otto} > \eta_{Diesel}$

153. The condition for an irreversible cycle is

(1) $\delta(\delta q/T) = 0$ (2) $\delta(\delta q/T) < 0$ (3) $\delta(\delta q/T) > 0$ (4) $\delta(\delta q/T) = \infty$

154. The isentropic process means

(1) reversible process (2) adiabatic process

(3) reversible adiabatic process (4) constant entropy process

155. During throttling process in an expansion valve of a refrigerator

(1) enthalpy remains constant but pressure decreases

(2) pressure remains constant but enthalpy decreases

(3) constant enthalpy process

(4) both pressure and enthalpy remains constant

156. A mixture of gas in a container of 0.05 m^3 is heated by supplying 100 kJ of heat during the process. The change in internal energy of the mixture is

(1) 0 kJ (2) 5 kJ (3) 100 kJ (4) 2000 kJ

157. The effective inhibitor of pre-ignition is

(1) alcohol (2) water (3) lead (4) diesel

158. In the expression of brake power BP = $(2\pi nT/60)$, for a four stroke engine 'n' should be taken as

(1) N (2) N/2 (3) 2N (4) N/4

where, N = speed of the crank shaft in rpm

159. Hydrocarbon fuels of Paraffin family are being used in S.I. engines, due to

(1) high cetane number (2) high octane number

(3) high heating value (4) high specific heat

160. The flow ratio in case of Francis turbine varies from

(1) 0.15 to 0.3 (2) 0.4 to 0.5 (3) 0.6 to 0.9 (4) 1 to 1.5

161. The ratio of the normal force of jet of water on a plate inclined at an angle of 60^{o} as compared to that when the plate is normal to jet, is

(1) 1 (2) $\sqrt{3}/2$ (3) 1/2 (4) 0

162. In all reaction turbines, for maximum efficiency

(1) the velocity of flow at outlet must be zero

(2) the velocity of flow at inlet must be zero

(3) the velocity of whirl at entrance must be zero

(4) the velocity of whirl at outlet must be zero

163. Centrifugal pumps dealing with mud have an impeller of the type

(1) open (2) double suction

(3) one-side shrouded (4) two-sides shrouded

164. Specific speed of impulse turbine ranges from

(1) 1000 to 2000 (2) 300 to 1000 (3) 60 to 300 (4) 10 to 50

165. Hydraulic ram is a pump which works on the principle of

(1) centrifugal action (2) reciprocating action

(3) positive displacement action (4) inertia forces of water in the supply line

166. Spare Ignition engine works on

(1) Diesel cycle (2) Otto cycle (3) Dual cycle (4) Ericssion cycle

167. While drawing a hydraulic or pneumatic circuit, it must begin with _____ and end with ____

(1) pump, actuator (2) filter, flow control valve

(3) pressure gauge, pressure control valve (4) service units, signaling elements

168. The pressure lines in the wet region of Mollier chart are straight because

(1) pressure remains constant (2) volume remains constant

(3) temperature remains constant (4) enthalpy remains constant

169. A safety valve mainly used with locomotive and marine boilers is

(1) lever safety valve (2) dead weight safety valve

(3) high steam and low water safety valve (4) spring loaded safety valve

170. In order to compare the capacity of boilers, the feed water temperature and working pressure are taken as

(1) 100°C and normal atmospheric pressure

(2) 100°C and 1.1 bar

(3) 50°C and normal atmospheric pressure

(4) 50°C and 1 bar pressure

171. The Mach number of steam flow at exit to a convergent divergent nozzle should be

(1) 0 (2) less than 1 (3) more than 1 (4) equal to 1

172. When the back pressure of a nozzle is below the designed value of pressure at exit of nozzle, the nozzle is said to be

(1) under expanding (2) over expanding

(3) choked (4) super saturated

173. The available enthalpy drop in a supersaturated flow of steam through a nozzle as compared to an equilibrium flow

(1) remains same (2) increases

(3) decreases (4) unpredictable

174. The Parson's reaction turbine has

(1) only moving blades

(2) only fixed blades

(3) different shapes of fixed and moving blades

(4) identical shape of fixed and moving blades

175. The isentropic enthalpy drop in moving blade is $2/3^{rd}$ of the isentropic enthalpy drop in fixed blades of a turbine. The degree of reaction will be

(1) 0.4 (2) 0.56 (3) 0.67 (4) 1.67

176. The cooling system used for supersonic air crafts and rockets is

(1) simple air cooling system (2) boot-strap air cooling system

(3) reduced ambient air cooling system (4) regenerative air cooling system

177. The capacity of a domestic refrigerator is in the range of

(1) 0.1 to 0.3 T (2) 0.5 to 1.0 T

(3) 1 to 3 T (4) 3 to 5 T

178. The capillary tube is not used in large capacity refrigeration systems because

(1) It is made of copper

(2) Capacity control is not possible

(3) required pressure drop cannot be achieved

(4) cost is too high

179. In aqua-ammonia and lithium bromide - water absorption refrigeration systems, the refrigerants are respectively

(1) water and water
(2) water and lithium bromide
(3) ammonia and lithium bromide
(4) ammonia and water

180. Queuing theory is associated with

(1) inventory (2) sales (3) waiting time (4) production time

181. The routing function in a production system design is concerned with

(1) manpower utilization
(2) machine utilization
(3) quality assurance of the product
(4) optimizing material flow through the plant

182. The value engineering technique in which experts of the same rank assemble for product development is called

(1) brain storming
(2) Delphi
(3) morphological analysis
(4) direct expert comparison

183. The type of organization preferred for an automobile industry

(1) line organization
(2) functional organization
(3) line and staff organization
(4) line, staff and functional organization

184. The mathematical technique for finding the best use of limited resources of a company in the maximum manner is known as

(1) value analysis
(2) network analysis
(3) queuing theory
(4) linear programming

185. For a small scale industry the fixed cost per month is Rs.5000/-. The variable cost per product is Rs. 20/- and sales price is Rs.30/- per piece. The break even production per month will be

(1) 300 (2) 400 (3) 500 (4) 1000

186. Bin cards are used in
(1) machine loading (2) quality control (3) stores (4) inventory

187. The chart which gives an estimate about the amount of materials handling between various work stations is known as
(1) flow chart (2) process chart (3) travel chart (4) operation chart

188. The type of layout suitable for manufacturing tools and gauges
(1) product layout (2) process layout
(3) combination of product and process layout (4) fixed position layout

189. The forecasting technique used for new products is
(1) Box Jenkins (2) Single exponential smoothing
(3) Delphi type (4) simple regression

190. Six sigma level of quality control means
(1) 2.1 defects per million opportunities (2) 3.4 defects per million opportunities
(3) 4.3 defects per million opportunities (4) 5.7 defects per million opportunities

191. In inventory control theory, the economic order quantity is
(1) average level of inventory (2) optimum lot size
(3) capacity of a warehouse (4) lot size corresponding to break-even analysis

192. In a single dry plate clutch, torsional vibrations are absorbed by
(1) coil springs (2) cushion springs (3) central hub (4) clutch pedal

193. The torque converter uses _____ to transfer torque.
(1) air (2) automatic transmission fluid
(3) gears (4) steel belt

194. In a four wheel drive, the number of gear boxes are
(1) 1 (2) 2 (3) 3 (4) 4

195. In a hydraulic power steering system, the power steering pump is driven by a
(1) belt driven by camshaft (2) chain driven by crankshaft
(3) belt driven by driveshaft (4) belt driven by crankshaft

196. Which of the following parameter can be adjusted by modifying the tie-rod attachment length?
(1) camber (2) caster (3) toe (4) steering gear ratio

197. The gudgeon pin connects
(1) crankshaft and connecting rod (2) connecting rod and piston
(3) connecting rod and cam shaft (4) piston and crank shaft

198. The function of antilock brake system is that it
(1) reduces the stopping distance
(2) minimizes the brake fade
(3) maintains directional control during braking by preventing the wheels from locking
(4) prevents nose dives during braking and there by postpones locking of the wheels

199. Odometer is an instrument used for measurement of
(1) power (2) fuel consumption
(3) engine rpm (4) distance

200. The problem caused by the wheel imbalance is
(1) hard steering and hard ride
(2) poor acceleration and hard steering
(3) steering wheel vibrations and uneven tyre wear
(4) poor acceleration and reduced fuel efficiency