





ECET' 2012

**** Questions number 1 to 100 will be of Maths, Physics and Chemistry.**

101. A mortise gauge is a ()
(1) planning tool (2) striking tool
(3) marking tool (4) boring tool
102. A saw which cuts wood during the return stroke of the saw is known as ()
(1) push saw (2) pull saw
(3) rip saw (4) hand saw
103. In a shaper, tool head consist of ()
(1) clapper box (2) work holding device
(3) collet (4) four sided tool post
104. The swing diameter over the bed is _____ the height of the centre measured from the bed of the lathe. ()
(1) equal to (2) one and half times
(3) twice (4) thrice
105. The rake angle required to machine brass by HSS tool is ()
(1) 0° (2) 10°
(3) 20° (4) -10°
106. The binding material used in cemented carbide tool is ()
(1) tungsten (2) chromium
(3) silicon (4) cobalt
107. The relation between tool life (T) and cutting speed (V) is $VT^n = \text{constant}$. In this relation, the value of a n depends upon ()
(1) work material (2) working conditions
(3) tool material (4) type of chip produced
108. The usual value of the point angle of a drill is ()
(1) 60° (2) 80°
(3) 112° (4) 118°
109. Drilling is an example of ()
(1) Orthogonal cutting (2) Oblique cutting
(3) Simple cutting (4) Uniform cutting
110. The top and sides of the table of a shaper usually have ()
(1) L-type slots (2) L-type slots
(3) T-type slots (4) H-type slots

111. In lapping operation, the amount of thickness of metal removed is ()
(1) 0.005 to 0.014 mm (2) 0.01 to 0.1 mm
(3) 0.05 to 0.1 mm (4) 0.5 to 1 mm
112. The process of removing metal by a cutter which is rotated in the same direction of travel of work piece is called ()
(1) up milling (2) down milling
(3) face milling (4) end milling
113. CNC drilling machine is considered to be ()
(1) P.T.P. controlled machine (2) Continuous path controlled machine
(3) Servo controlled machine (4) Adaptive controlled machine
114. Seam welding is best adopted for metal thickness ranging from ()
(1) 0.025 to 3 mm (2) 3 to 5 mm
(3) 5 to 8 mm (4) 8 to 10 mm
115. In welding, flux is used to ()
(1) improve melting point of metal (2) obtain high temperature
(3) mix the metal at joint (4) protect molten metal from atmosphere
116. Acetylene 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 arc 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 cancel 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 l 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 elongation 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 moulds 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) $T \times 3$
(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) $p = D \sin (90^\circ/T)$ (2) $p = D \sin (120^\circ/T)$
(3) $p = D \sin (180^\circ/T)$ (4) $p = D \sin (360^\circ/T)$

- (ECET 2012)

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) $\eta_{\text{Otto}} > \eta_{\text{Diesel}} > \eta_{\text{Dual}}$ (2) $\eta_{\text{Otto}} > \eta_{\text{Dual}} > \eta_{\text{Diesel}}$
(3) $\eta_{\text{Diesel}} > \eta_{\text{Dual}} > \eta_{\text{Otto}}$ (4) $\eta_{\text{Dual}} > \eta_{\text{Otto}} > \eta_{\text{Diesel}}$
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° as compares 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. Spark Ignition engine works on ()
 (1) Diesel cycle (2) Otto cycle
 (3) Dual cycle (4) Ericsson 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 $\frac{2}{3}$ 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 product 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

KEY

101. 3	102. 3	103. 1	104.	105. 1	106. 4	107. 3	108. 4	109. 3	110. 3
111. 1	112. 2	113. 1	114. 1	115. 4	116. 1	117. 3	118. 1	119. 1	120. 3
121. 1	122. 1	123. 4	124. 3	125. 2	126. 1	127. 4	128. 4	129. 2	130. 1
131. 2	132. 1	133. 3	134. 4	135. 1	136. 3	137. 4	138. 3	139. 3	140. 4
141. 3	142. 1	143. 2	144. 1	145. 2	146. 3	147. 4	148. 1	149. 2	150. 1
151. 3	152. 2	153. 2	154. 4	155. 1	156. 3	157. 3	158. 2	159. 2	160. 1
161. 2	162. 3	163.	164. 4	165. 2	166. 2	167. 1	168. 1	169. 4	170. 1
171. 3	172. 1	173. 1	174. 4	175. 4	176. 4	177. 1	178. 3	179. 2	180. 3
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