

- $\int_0^{2a} \frac{f(x)}{f(x) + f(2a-x)} dx$ is
- (a) 0 (b) a
 (c) $2a$ (d) None of these
144. The area bounded by the curves $y = xe^x$, $y = xe^{-x}$ and the line $x = 1$, is
 (a) $\frac{2}{e}$ sq unit (b) $1 - \frac{2}{e}$ sq unit
 (c) $\frac{1}{e}$ sq unit (d) $1 - \frac{1}{e}$ sq unit
145. The solution of $x dy - y dx + x^2 e^x dx = 0$ is
 (a) $\frac{y}{x} + e^x = c$ (b) $\frac{x}{y} + e^x = c$
 (c) $x + e^y = c$ (d) $y + e^x = c$
146. The degree and order of the differential equation of all parabolas whose axis is x -axis, are
 (a) 2, 1 (b) 1, 2
 (c) 3, 2 (d) None of these
147. Three forces P, Q, R act along the sides BC, CA, AB of a triangle ABC taken in order. The condition that the resultant passes through the incentre, is
 (a) $P + Q + R = 0$
 (b) $P \cos A + Q \cos B + R \cos C = 0$
 (c) $P \sec A + Q \sec B + R \sec C = 0$
 (d) $\frac{P}{\sin A} + \frac{Q}{\sin B} + \frac{R}{\sin C} = 0$
148. The resultant of two forces P and Q is R . If Q is doubled, R is doubled and if Q is reversed, R is again doubled. If the ratio $P^2 : Q^2 : R^2 = 2 : 3 : x$, then x is equal to
 (a) 5 (b) 4
 (c) 3 (d) 2
149. A particle is dropped under gravity from rest from a height h ($g = 9.8 \text{ m/s}^2$) and it travels a distance $\frac{9h}{25}$ in the last second, the height h is
 (a) 100 m (b) 122.5 m
 (c) 145 m (d) 167.5 m
150. A man can throw a stone 90 m. The maximum height to which it will rise in metres, is
 (a) 30 (b) 40
 (c) 45 (d) 50

Answer – Key

81. b	82. c	83. d	84. d	85. b	86. c	87. a	88. a	89. b	90. b
91. b	92. a	93. c	94. c	95. a	96. a	97. a	98. c	99. c	100. b
101. a	102. d	103. b	104. b	105. b	106. b	107. b	108. a	109. b	110. d
111. a	112. a	113. a	114. d	115. c	116. c	117. a	118. b	119. c	120. b
121. d	122. d	123. c	124. a	125. b	126. b	127. a	128. a	129. c	130. a
131. a	132. c	133. c	134. d	135. d	136. c	137. b	138. a	139. c	140. c
141. d	142. d	143. b	144. a	145. a	146. b	147. a	148. d	149. b	150. c