**AL BASITH TRUST**

**Date :**15-09-2019 **TEST ID: 731**

**Time :** 05:51:00 **MATHEMATICS**

**Marks :** 351

1. DIFFERENTITATION

**Single Correct Answer Type**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | If , then is equal to | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) | None of these | | | | | | |
| 2. | The derivative of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 3. | The value of differentiation of with respect to at is | | | | | | | |
|  | a) |  | b) | 0 | c) |  | d) | 1 |
| 4. | If then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 5. | If with | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 6. | If , then is equal to | | | | | | | |
|  | a) |  | b) | 1 | c) | 0 | d) |  |
| 7. | The derivative of w.r.t. is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 8. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 9. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 10. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 11. | If then the value of is | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | 2 |
| 12. | If then at is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 13. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 14. | If where are parameters, then is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 15. | If and , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 16. | If | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of the above | | |
| 17. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 18. | If , then is equal to | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) |  |
| 19. | If is a polynomial of degree 3, then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 20. | If and , then | | | | | | | |
|  | a) | 1 | b) | 0 | c) |  | d) | None of these |
| 21. | Let Then, is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 22. | Let g is a twice differentiable positive function on such that is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 23. | If , then is equal to | | | | | | | |
|  | a) | 2 | b) | 0 | c) | 1/2 | d) |  |
| 24. | If is the th derivative of , then is equal to | | | | | | | |
|  | a) | 1 | b) | 0 | c) |  | d) | None of these |
| 25. | If , then the value of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 26. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 27. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 0 |
| 28. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 29. | If where are constants, then , is equal to | | | | | | | |
|  | a) | A constant | | | | | | |
|  | b) | A function of | | | | | | |
|  | c) | A function of | | | | | | |
|  | d) | A function of and both | | | | | | |
| 30. | If , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 31. | If , then equals | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 32. | If is equal to | | | | | | | |
|  | a) |  | b) | 2 | c) |  | d) | 0 |
| 33. | If and , then is equal to | | | | | | | |
|  | a) | 1⁄2 | b) | 2⁄5 | c) | 3⁄2 | d) | 1⁄3 |
| 34. | is equal to | | | | | | | |
|  | a) | 0 | b) | tan | c) | 1 | d) | sin cos |
| 35. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 36. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 37. | The differential coefficient of with respect to , where , is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 38. | If | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | 2 |
| 39. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 40. | If and is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 41. | If is equal to | | | | | | | |
|  | a) | 14 | b) | 7/8 | c) | 1 | d) | None of these |
| 42. | If , then is equal to | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 43. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 44. | Derivative of the function is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of these | | |
| 45. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 46. | If | | | | | | | |
|  | a) | 1 | b) |  | c) | 0 | d) | 2 |
| 47. | is equal to | | | | | | | |
|  | a) | 0 | b) | 2 | c) |  | d) |  |
| 48. | If , then at , is | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) |  |
| 49. | If then what is the value of the derivative of at | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 50. | If is a polynomial such that and, then is equal to | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | None of these |
| 51. | If then at is | | | | | | | |
|  | a) |  | b) | 1 | c) |  | d) |  |
| 52. | Let , then derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 53. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 54. | If , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 55. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 56. | If thenis equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 57. | If , then at is equal to | | | | | | | |
|  | a) | 6 sin log (5) | b) | 5 sin log (6) | c) | 12 sin log (5) | d) | 5 sin log (12) |
| 58. | is equal to | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) |  |
| 59. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 60. | If then is | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) |  |
| 61. | If and is equal to | | | | | | | |
|  | a) | 12 | b) | 32 | c) | 36 | d) | 10 |
| 62. | Let and . Then the set of points satisfying , is | | | | | | | |
|  | a) | (0, 1) | b) | [0, 1) | c) |  | d) |  |
| 63. | If , where , then at is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 64. | The differential coefficient of , is | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 65. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 66. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 67. | If has a derivative at is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 68. | The rate of change of with respect to at is | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) |  |
| 69. | is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 70. | The derivative of with respect tologis | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 71. | If , then is | | | | | | | |
|  | a) |  | b) | 0 | c) | 1/2 | d) | None of these |
| 72. | If is an even function which us twice differentiable on and , then | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | 2 |
| 73. | The derivative of | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 74. | The derivative of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 75. | The differential coefficient of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 76. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 77. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 1 | d) |  |
| 78. | The derivative of at where , is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 79. | If is equal to | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 0 | d) |  |
| 80. | If for all and then  is | | | | | | | |
|  | a) | 8 | b) | 16 | c) | 32 | d) | 64 |
| 81. | If be a polynomial, then the second derivative of is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 82. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 83. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) | 1 |
| 84. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 85. | Let a function be defined parametrically by . Then, | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) | Does not exist |
| 86. | If is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 87. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 88. | The derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 1 |
| 89. | If  To | | | | | | | |
|  | a) | 0 | b) | 2 | c) |  | d) |  |
| 90. | Let is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 91. | If here is a constant, then is | | | | | | | |
|  | a) | Proportional to | | | b) | Proportional to | | |
|  | c) | Proportional to | | | d) | A constant | | |
| 92. | Let be a polynomial function of the second degree. If and are in AP, then are in | | | | | | | |
|  | a) | AP | b) | GP | c) | HP | d) | None of these |
| 93. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 94. | If , then is equal to | | | | | | | |
|  | a) |  | b) | 1 | c) | 2 | d) |  |
| 95. | If , then is | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) |  |
| 96. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 97. | A differentiable function is defined for all and satisfies for all The value of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 98. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 99. | The second order derivative of is | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) |  |
| 100. | If and , then equals | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) | None of these |
| 101. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 102. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 103. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 104. | If is an even function which is twice differentiable on and then ) is equal to | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | 2 |
| 105. | If is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 106. | If then the derivative of the composite function is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | 2 |
| 107. | If | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 108. | Let then is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 2 | d) |  |
| 109. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 110. | Find | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 111. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 112. | Let be twice differentiable function such that  is equal to | | | | | | | |
|  | a) | 22 | b) | 11 | c) | 0 | d) | 20 |
| 113. | If and | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 114. | If is | | | | | | | |
|  | a) | 1 in the whole plane | | | b) | in the whole plane | | |
|  | c) | 1 in the 2nd and 3rd quadrants of the plane | | | d) | in the 3rd and 4th quadrants of the plane | | |
| 115. | If for all , the function is defined by and . Then, | | | | | | | |
|  | a) | for all | | | | | | |
|  | b) |  | | | | | | |
|  | c) | does not exist | | | | | | |
|  | d) | None of these | | | | | | |
| 116. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 117. | If , then is equal to | | | | | | | |
|  | a) | 1/2 | b) | 2 | c) |  | d) |  |
| 118. | If is | | | | | | | |
|  | a) | 32 | b) | 16 | c) | 0 | d) |  |
| 119. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 120. | Let be an implicit function of defined by Then equals | | | | | | | |
|  | a) |  | | | | | | |
|  | b) | 1 | | | | | | |
|  | c) | log 2 | | | | | | |
|  | d) |  | | | | | | |
| 121. | If , then | | | | | | | |
|  | a) | for all | | | | | | |
|  | b) | for all | | | | | | |
|  | c) | for all | | | | | | |
|  | d) | None of these | | | | | | |
| 122. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 123. | If , then is equal to | | | | | | | |
|  | a) |  | b) | 2 | c) |  | d) |  |
| 124. | If , then is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 125. | If is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | 2 |
| 126. | Let The value of such that is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 127. | The derivative of with respect to is | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) |  |
| 128. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 129. | The derivative of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 130. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 131. | If be a differentiable function with and Let g(. Then, is equal to | | | | | | | |
|  | a) | 4 | b) |  | c) | 0 | d) |  |
| 132. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 133. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 134. | equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 1 |
| 135. | If =,then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 136. | If | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of the above | | |
| 137. | For is equal to | | | | | | | |
|  | a) |  | b) | 1/4 | c) |  | d) | 1/2 |
| 138. | If , then equals | | | | | | | |
|  | a) | , for | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 139. | The differential coefficient of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 140. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 141. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 142. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 143. | If , then is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 144. | If +where g and are differentiable function, then is | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) | 0 |
| 145. | If , then the value of is | | | | | | | |
|  | a) | 1 | b) |  | c) | 0 | d) | 2 |
| 146. | The value of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 147. | If , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 148. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 149. | is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 150. | If Is | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) | 1 |
| 151. | If where is a polynomial of degree 3, then | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | All of these | | |
| 152. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 153. | If is equal to | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) |  |
| 154. | Let is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 155. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 156. | The derivative of is | | | | | | | |
|  | a) | In | b) | In | c) | In | d) |  |
| 157. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 158. | If , then is equal to | | | | | | | |
|  | a) | 2 | b) | 1 | c) | 0 | d) |  |
| 159. | Observe the following statements:  I. If , then  II.  Which of the following is correct? | | | | | | | |
|  | a) | I is true, but II is false | b) | Both I and II true | c) | Neither I nor II is true | d) | I is false, but II is true |
| 160. | If and then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 161. | If then the value of at is | | | | | | | |
|  | a) |  | b) |  | c) | 1 | d) |  |
| 162. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 163. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 164. | If and , then is equal to | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) | None of these |
| 165. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 166. | If , then the value of at , is | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | 2 |
| 167. | The value of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 168. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 169. | If is | | | | | | | |
|  | a) | 0 | b) | 1 | c) | 2 | d) | None of these |
| 170. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 171. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 172. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 173. | If , then equals | | | | | | | |
|  | a) | for | b) | for | c) | for | d) | for |
| 174. | If , then the value of at is | | | | | | | |
|  | a) | 8 | b) | 1 | c) | 4 | d) | 5 |
| 175. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 176. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 177. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 178. | If is equal to | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) | 0 |
| 179. | If where log log log…(repeated times), then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 1 |
| 180. | If , then the value of at is | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | None of these |
| 181. | If , then the value of is equal to | | | | | | | |
|  | a) |  | b) | 1 | c) | 0 | d) |  |
| 182. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 183. | The derivative of is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 184. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 185. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 186. | The derivative of is | | | | | | | |
|  | a) |  | b) | 1 | c) | 2 | d) | 4 |
| 187. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 188. | If , then equal | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 189. | If , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 190. | If , then is | | | | | | | |
|  | a) | 2 | b) | 1 | c) | 0 | d) |  |
| 191. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 192. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 193. | If , then the value of , is | | | | | | | |
|  | a) |  | b) | 0 | c) |  | d) | None of these |
| 194. | The derivative of w.r.t. is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 195. | The 2nd derivative of with respect to is | | | | | | | |
|  | a) |  | b) | 2 | c) |  | d) | None of these |
| 196. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 197. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 198. | If where , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 199. | Let is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 200. | The value of at , where is given by , is | | | | | | | |
|  | a) |  | b) | 1 | c) |  | d) |  |
| 201. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 202. | The derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 203. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 204. | If , then is equal to | | | | | | | |
|  | a) | 0 | b) | 1 | c) | 2 | d) | None of these |
| 205. | Let be the inverse of the function and , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 206. | If and , then the value of at , is | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 207. | If ), then the value of at is | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | None of these |
| 208. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 209. | If and denotes the greatest integer function, then is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) | None of these |
| 210. | is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 211. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 212. | If is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) | 1 |
| 213. | If is equal to | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) |  |
| 214. | If and , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 215. | If equal to | | | | | | | |
|  | a) | 0 | b) | 1/2 | c) |  | d) |  |
| 216. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 217. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 218. | A curve is given by the equations . Then the points for which are given by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 219. | If and | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 220. | The value of at , is | | | | | | | |
|  | a) |  | b) | 0 | c) | 2 | d) | 4 |
| 221. | If is a parameter, then at (1, 1) is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 222. | If , then is | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) |  |
| 223. | Find the derivative of with respect to if | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 224. | equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 1 |
| 225. | Derivative of w.r.t. is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 226. | Ifis equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 227. | If then the value of at (1,1) is | | | | | | | |
|  | a) | 0 | b) |  | c) | 1 | d) | 2 |
| 228. | If , then is | | | | | | | |
|  | a) | for all | b) | for all | c) | for all | d) | None of these |
| 229. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 230. | is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 231. | If parameters, then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 232. | Derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 233. | A value of in the interval (1,2) such that , where  is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 234. | Given that . The relationship is valid, if is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 235. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 236. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 237. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 238. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 239. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 240. | If , then the value of for , is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 241. | If , then is equal to | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) | None of these |
| 242. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 243. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 244. | Let and If then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 245. | If , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 246. | The value of at is | | | | | | | |
|  | a) |  | b) | 1 | c) |  | d) |  |
| 247. | If is an even function having derivatives of all orders, then an odd function among the following is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 248. | If variables and are related by the equation  , then 43, is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 249. | If and , then equals | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) | None of these |
| 250. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 251. | If , then equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 252. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 253. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 254. | If and g are two functions with g and  then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 255. | If then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 256. | If , then is | | | | | | | |
|  | a) | 1 | b) |  | c) | 0 | d) |  |
| 257. | For is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 258. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) | 1 |
| 259. | is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 260. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 261. | If is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 262. | If , then equals | | | | | | | |
|  | a) | 1 | b) | 0 | c) |  | d) |  |
| 263. | If then the value of is | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) | 0 |
| 264. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 265. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 266. | If variables and are related by the equation  , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 267. | If is | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | 2 |
| 268. | If , then the value of is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of these | | |
| 269. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 0 |
| 270. | Let . If is a polynomial of degree 20, where denotes the order derivative of with respect to , then the value of is | | | | | | | |
|  | a) | 60 | b) | 40 | c) | 70 | d) | 50 |
| 271. | If is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) | 1 |
| 272. | If variables and are related by the equation then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 273. | equals | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 274. | If the function is defined by and (repeated times), then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 275. | Let , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 276. | If , then , is | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) | None of these |
| 277. | If then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 278. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 279. | If , then at is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 280. | The derivative of with respect to is | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) |  |
| 281. | If is equal to | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 0 | d) |  |
| 282. | is equal to | | | | | | | |
|  | a) |  | | | b) | In 10 | | |
|  | c) | In 10 | | | d) |  | | |
| 283. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 284. | If , then for is equal to | | | | | | | |
|  | a) |  | b) | 0 | c) | 1 | d) | 2 |
| 285. | The expression of of the function , is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 286. | If is | | | | | | | |
|  | a) |  | b) | 1 | c) | 0 | d) | 2 |
| 287. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 288. | If is | | | | | | | |
|  | a) | 1 | b) |  | c) |  | d) | 0 |
| 289. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 290. | If is a function of and log then the value of is equal to | | | | | | | |
|  | a) | 1 | b) |  | c) | 2 | d) | 0 |
| 291. | If | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 292. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 293. | If is equal to | | | | | | | |
|  | a) | a constant | | | b) | a function of | | |
|  | c) | a function of | | | d) | a function of and both | | |
| 294. | If a curve is given by and , then the points for which are given by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 295. | If , then equals | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 296. | is a polynomial of degree 2, and is equal to | | | | | | | |
|  | a) | 3 | b) |  | c) | 2 | d) |  |
| 297. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 298. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 299. | If , then the value of is | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 300. | If then is | | | | | | | |
|  | a) | 1/2 | b) | 0 | c) | 1 | d) | Does not exist |
| 301. | If and , then the ratio is equal to | | | | | | | |
|  | a) |  | b) | 5:2 | c) | 3:5 | d) | 1:2 |
| 302. | Differential coefficient of is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 303. | The differential coefficient of the function at the point is | | | | | | | |
|  | a) |  | b) | 0 | c) | 2 | d) | undefined |
| 304. | If , then at , is | | | | | | | |
|  | a) | 8 | b) | 1 | c) | 4 | d) | 5 |
| 305. | The derivative of at the point , is | | | | | | | |
|  | a) | 3 | b) |  | c) | 0 | d) | Does not exist |
| 306. | The derivative of with respect to is | | | | | | | |
|  | a) |  | b) | 1 | c) | 2 | d) | 4 |
| 307. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 308. | If is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of these | | |
| 309. | If and , then equals | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) | None of these | | | | | | |
| 310. | If , then at is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 311. | Derivative of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 312. | Let If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 313. | If is equal to | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 314. | If is a continuous double differentiable function and is | | | | | | | |
|  | a) | 0 | b) | 5 | c) | 10 | d) | 25 |
| 315. | Derivative of is | | | | | | | |
|  | a) |  | b) |  | c) | 1 | d) |  |
| 316. | If , then | | | | | | | |
|  | a) | Does not exist | b) | Is equal to | c) | Is equal to | d) | Is equal to 1 |
| 317. | If  is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 318. | If is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 319. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 320. | If ....…, for 0 < | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 321. | For , letto , then equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 322. | If is | | | | | | | |
|  | a) | 1 | b) | 0 | c) |  | d) |  |
| 323. | If is equal to | | | | | | | |
|  | a) | 2 | b) |  | c) |  | d) |  |
| 324. | If is equal to | | | | | | | |
|  | a) |  | b) | 0 | c) |  | d) | None of the above |
| 325. | If log (sin( at is | | | | | | | |
|  | a) | 0 | b) | 1 | c) |  | d) |  |
| 326. | The derivative of is equal to | | | | | | | |
|  | a) | 0 | b) |  | c) |  | d) |  |
| 327. | Differential coefficient of is equal to | | | | | | | |
|  | a) | 2 | b) | 4 | c) | 6 | d) | 1 |
| 328. | If and is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 329. | If and , then equals | | | | | | | |
|  | a) | 2 | b) | 4 | c) | 1 | d) | 1/2 |
| 330. | If is a polynomial of degree and , (where is fixed real number), then the degree of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 331. | If , then is | | | | | | | |
|  | a) | Zero | b) | Constant = 1 | c) | Constant | d) | None of these |
| 332. | is constant | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 333. | , here is a constant, then is | | | | | | | |
|  | a) | Proportional to | b) | Proportional to | c) | Proportional to | d) | A constant |
| 334. | If is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 335. | If is | | | | | | | |
|  | a) |  | b) | 0 | c) |  | d) | 1 |
| 336. | If and , then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 337. | If then the value of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 338. | If | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 339. | The value of at is | | | | | | | |
|  | a) |  | b) | 0 | c) | 2 | d) | 4 |
| 340. | If is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 341. | The derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 342. | Let is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 343. | The derivative of with respect to is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 344. | Let be a twice differentiable function such that and If  and is equal to | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | None of these |
| 345. | If , then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 346. | If , then is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 347. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 348. | th derivative of is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 349. | If is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 350. | If , then at , is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 351. | If then is equal to | | | | | | | |
|  | a) | 1 | b) |  | c) | 2 | d) | 0 |

**AL BASITH TRUST**

**Date :**15-09-2019 **TEST ID: 731**

**Time :** 05:51:00 **MATHEMATICS**

**Marks :** 351

1.DIFFERENTITATION

|  |
| --- |
| **: ANSWER KEY :** |

|  |
| --- |
| **1) d 2) c 3) d 4) b**  **5) d 6) c 7) a 8) d**  **9) b 10) a 11) c 12) b**  **13) b 14) b 15) b 16) a**  **17) b 18) b 19) c 20) b**  **21) b 22) a 23) a 24) b**  **25) b 26) a 27) a 28) a**  **29) a 30) c 31) c 32) d**  **33) d 34) c 35) c 36) b**  **37) b 38) b 39) d 40) c**  **41) b 42) b 43) d 44) a**  **45) c 46) c 47) a 48) c**  **49) d 50) c 51) a 52) a**  **53) d 54) a 55) d 56) a**  **57) c 58) c 59) a 60) d**  **61) d 62) c 63) a 64) b**  **65) b 66) d 67) a 68) c**  **69) d 70) c 71) b 72) c**  **73) b 74) c 75) c 76) b**  **77) a 78) a 79) d 80) c**  **81) d 82) c 83) c 84) c**  **85) d 86) d 87) b 88) a**  **89) d 90) b 91) d 92) a**  **93) b 94) b 95) d 96) b**  **97) b 98) c 99) c 100) c**  **101) d 102) a 103) b 104) c**  **105) d 106) c 107) c 108) b**  **109) c 110) a 111) a 112) b**  **113) a 114) d 115) a 116) a**  **117) b 118) c 119) a 120) a**  **121) d 122) d 123) d 124) c**  **125) c 126) b 127) c 128) c**  **129) c 130) c 131) b 132) b**  **133) a 134) b 135) b 136) a**  **137) a 138) c 139) b 140) c**  **141) c 142) d 143) c 144) d**  **145) c 146) d 147) b 148) d**  **149) d 150) c 151) d 152) a**  **153) c 154) c 155) a 156) c**  **157) d 158) c 159) a 160) a**  **161) a 162) c 163) c 164) a**  **165) b 166) b 167) c 168) d**  **169) a 170) d 171) c 172) c**  **173) b 174) b 175) d 176) a**  **177) d 178) b 179) b 180) a**  **181) a 182) a 183) d 184) a**  **185) a 186) b 187) d 188) a**  **189) b 190) c 191) d 192) c**  **193) b 194) c 195) a 196) b**  **197) b 198) a 199) d 200) a**  **201) b 202) d 203) d 204) a**  **205) c 206) c 207) c 208) b**  **209) c 210) c 211) b 212) c**  **213) b 214) b 215) a 216) d**  **217) d 218) c 219) c 220) b**  **221) a 222) a 223) c 224) b**  **225) c 226) b 227) a 228) d**  **229) d 230) c 231) b 232) c**  **233) a 234) b 235) d 236) b**  **237) b 238) c 239) b 240) b**  **241) d 242) b 243) a 244) c**  **245) b 246) a 247) b 248) c**  **249) b 250) a 251) d 252) a**  **253) d 254) a 255) b 256) c**  **257) d 258) d 259) a 260) d**  **261) d 262) b 263) b 264) d**  **265) b 266) b 267) c 268) b**  **269) c 270) c 271) d 272) c**  **273) d 274) d 275) b 276) c**  **277) c 278) b 279) c 280) b**  **281) d 282) b 283) b 284) c**  **285) c 286) b 287) a 288) c**  **289) d 290) a 291) d 292) c**  **293) a 294) b 295) a 296) a**  **297) b 298) d 299) a 300) a**  **301) a 302) b 303) b 304) b**  **305) b 306) b 307) b 308) a**  **309) b 310) c 311) b 312) d**  **313) b 314) b 315) d 316) c**  **317) d 318) c 319) c 320) b**  **321) d 322) b 323) d 324) d**  **325) d 326) c 327) b 328) c**  **329) c 330) b 331) b 332) b**  **333) d 334) c 335) b 336) c**  **337) b 338) a 339) b 340) b**  **341) d 342) b 343) a 344) d**  **345) b 346) a 347) c 348) c**  **349) b 350) d 351) d** |

**AL BASITH TRUST**

**Date :**15-09-2019 **TEST ID: 731**

**Time :** 05:51:00 **MATHEMATICS**

**Marks :** 351

1.DIFFERENTITATION

|  |
| --- |
| **: HINTS AND SOLUTIONS :** |

|  |  |
| --- | --- |
| 1 | **(d)**  We have, |
| 2 | **(c)**  Let  and |
| 3 | **(d)**  Let and  On differentiating w.r.t. we get  and  1. |
| 4 | **(b)**  Given, |
| 5 | **(d)**  Given, +  (GP series) …(i)  [from Eq.(i)] |
| 6 | **(c)**  On differentiating w.r.t. , we get |
| 7 | **(a)**  Let  Now, |
| 8 | **(d)**  Given, |
| 9 | **(b)**  Given, …(i)  On squaring both sides, we get  (  . |
| 10 | **(a)**  Given, |
| 11 | **(c)** |
| 12 | **(b)**  Given,  On differentiating w.r.t. we get  =  and =  At |
| 13 | **(b)**  We have,  =  =  =  On differentiating w.r.t. we get |
| 14 | **(b)**  On differentiating w.r.t. , we get  Again differentiating w.r.t. , we get  Again differentiating w.r.t. , we get |
| 15 | **(b)**  Let and . Then  Differentiating w.r.t. to  But, |
| 16 | **(a)**  Given,  On differentiating w.r.t. we get |
| 17 | **(b)**  Now,  =  = |
| 18 | **(b)**  We have,  and  Now, |
| 19 | **(c)**  …(i)  [from Eq.(i)] |
| 20 | **(b)**  We have,  for all  for all |
| 21 | **(b)**  Given,  On differentiating w.r.t. , we get  Again, differentiating w.r.t. we get |
| 22 | **(a)**  Since,  and  …(i)  Replacing by , we get  …(ii)  On substituting, in Eq. (ii) and adding, we get |
| 24 | **(b)**  Let  Taking common from row  (and rows are identical) |
| 25 | **(b)**  We have,  On differentiating Eq. (i) w.r.t. , we get  Put, in Eq. (ii), we get |
| 26 | **(a)** |
| 27 | **(a)**  For |
| 28 | **(a)**  On differentiating w.r.t. , we get |
| 29 | **(a)**  We have,  Differentiating this with respect to , we get  …(i)  …[From (i)] |
| 30 | **(c)**  Given,  = |
| 31 | **(c)**  We have,  Differentiating again w.r.t. , we get |
| 32 | **(d)**  At |
| 33 | **(d)**  Given that,  and  On differentiating both w.r.t. respectively, we get |
| 34 | **(c)**  Given,  and  and |
| 35 | **(c)** |
| 36 | **(b)**  We have, |
| 37 | **(b)**  Let |
| 38 | **(b)** |
| 39 | **(d)**  Given, …(i)  …(ii)  [using Eq. (ii)]  [using Eq. (i)] |
| 40 | **(c)**  Put in both the equations, we get  and  On differentiating both the Eqs.(i) and (ii), we get  Therefore, |
| 41 | **(b)**  On replacing by , we get  On multiplying Eq. (i) by 5 and Eq. (ii) by 3 and then on subtracting, we get |
| 42 | **(b)**  We have, |
| 43 | **(d)**  Let  On differentiating w.r.t. from 1 to times, we get  bysymmctry. |
| 44 | **(a)**  On differentiating w.r.t. , we get |
| 45 | **(c)**  We have, |
| 46 | **(c)**  Since, |
| 47 | **(a)**  Given,  and |
| 48 | **(c)**  We have, |
| 49 | **(d)**  Given, |
| 50 | **(c)**  Polynomial , satisfying the given relation can be taken as |
| 51 | **(a)**  Given that,  On differentiating w.r.t., we get  and  Now, |
| 54 | **(a)**  We have, |
| 55 | **(d)**  Given,  On differentiating w.r.t., we get |
| 56 | **(a)** |
| 57 | **(c)** |
| 58 | **(c)**  Let  On differentiating w.r.t. we get |
| 59 | **(a)**  Given,  On differentiating w.r.t. we get |
| 60 | **(d)** |
| 61 | **(d)**  Given,  Now ,  Now, |
| 62 | **(c)**  We have,  and |
| 63 | **(a)**  In the neighbourhood of , we observe that  and  and |
| 65 | **(b)**  Given,  …(i)  [using eq(i)] |
| 66 | **(d)**  Given |
| 67 | **(a)** |
| 68 | **(c)**  Let  On differentiating w.r.t., , we get  and |
| 69 | **(d)**  Given,  = |
| 70 | **(c)**  Let  On differentiating w.r.t. , we get  and |
| 72 | **(c)**  Since is an even function |
| 73 | **(b)**  On taking log in the given equation, we get  log |
| 74 | **(c)**  Let  Put  On differentiating w.r.t. we get |
| 75 | **(c)**  Let  Put  On differentiating w.r.t. , we get |
| 76 | **(b)**  We have,  Putting , it reduces to  Differentiating w.r.t. , we get |
| 77 | **(a)**  Hence, |
| 78 | **(a)**  Let  On differentiating w.r.t. we get  and |
| 79 | **(d)** |
| 80 | **(c)**  = 0  = |
| 82 | **(c)**  On differentiating w.r.t. we get |
| 83 | **(c)**  0 |
| 84 | **(c)**  We have, |
| 85 | **(d)**  Hence,  We can’t find as the derivative does not exist at |
| 86 | **(d)**  On differentiating w.r.t. , we get |
| 87 | **(b)**  On differentiating w.r.t. , we get |
| 88 | **(a)**  Let |
| 89 | **(d)**  Given,  On differentiating w.r.t. we get |
| 90 | **(b)**  Given,  Since,  Now, |
| 91 | **(d)**  On differentiating w.r.t. , we get  Again differentiating w.r.t. , we get  Again differentiating w.r.t. , we get  constant |
| 92 | **(a)**  Let  Now assume |
| 93 | **(b)**  Given,  Now, |
| 94 | **(b)**  We have, and |
| 95 | **(d)**  We have, |
| 96 | **(b)**  On differentiating partially w.r.t. we get |
| 97 | **(b)**  Let  On differentiating w.r.t. we get |
| 98 | **(c)**  We have,  Differentiating w.r.t. , we get |
| 99 | **(c)**  Let  On differentiating w.r.t. , we get  Again, differentiating w.r.t. , we get |
| 100 | **(c)**  We have, |
| 101 | **(d)**  Given, |
| 102 | **(a)**  We have,  Differentiating w.r.t. to , we get |
| 103 | **(b)**  Given,  Applying componendo and dividendo, we get  On differentiating w.r.t. we get |
| 104 | **(c)**  Let the even function be  At =1  **Alternate**  Since the function is twice differentiable |
| 105 | **(d)**  Given,  =  = |
| 106 | **(c)**  The derivative of composite function is equal to 1. |
| 107 | **(c)**  …(i)  Taking log on given function, we get  [using eq.(i)] |
| 108 | **(b)**  Given,  Let  Multiply Eq. (i) by 3 and Eq. (ii) by 2 and then adding, we get  On differentiating w.r.t. , we get |
| 109 | **(c)**  or  On differentiating both sides w.r.t. , we get  or  Again differentiating both sides w.r.t. , we get  or  Again, on differentiating both sides w.r.t. , we get |
| 110 | **(a)**  Given,  and  and |
| 111 | **(a)**  Given, ) and  and |
| 112 | **(b)**  Since,  Now, and  and  Thus, and  constant for all  But  Hence, |
| 113 | **(a)**  Here,  . |
| 114 | **(d)**  Given,  For  For  Hence, option (d) is correct. |
| 115 | **(a)**  We have,  for all …(i)  Putting , we get  Putting in (i), we get  for all  for all  for all  for all |
| 116 | **(a)**  On differentiating given equation w.r.t. we get |
| 117 | **(b)**  Given, |
| 118 | **(c)**  Given,  On differentiating partially w.r.t. twicely  Similarly,  and |
| 119 | **(a)**  Since,  On differentiating w.r.t. we get  +log |
| 120 | **(a)**  …(i)  At  On differentiating Eq. (i), w.r.t., we get  At  2+2 |
| 121 | **(d)**  We have, |
| 122 | **(d)** |
| 123 | **(d)**  = |
| 124 | **(c)**  On differentiating w.r.t. , we get |
| 125 | **(c)**  On differentiating the given equation partially w.r.t. and respectively  Now, |
| 126 | **(b)**  Given,  On differentiating w.r.t.  put  = |
| 127 | **(c)**  Let  and  Put  On differentiating w.r.t. , we get |
| 128 | **(c)** |
| 129 | **(c)**  We have, |  = |
| 130 | **(c)**  On differentiating w.r.t. we get |
| 131 | **(b)**  G |
| 132 | **(b)**  Since, is not a homogeneous function. But is a homogeneous function of degree one.  Here, by Euler’s theorem, |
| 133 | **(a)**  Given, |
| 134 | **(b)**  Let  Put  On differentiating w.r.t. , we get |
| 135 | **(b)**  On differentiating, we get |
| 136 | **(a)**  Given, |
| 137 | **(a)** |
| 138 | **(c)**  We have, |
| 139 | **(b)**  = |
| 140 | **(c)**  On differentiating w.r.t. , we get |
| 141 | **(c)**  Given,  On differentiating w.r.t. we get  Again, differentiating w.r.t. we get  Using Leibnitz’s rule, |
| 142 | **(d)**  Put in the given equation, we get |
| 143 | **(c)**  Given, |
| 144 | **(d)**  Given,  On differentiating w.r.t. we get  = 0 |
| 145 | **(c)**  We have, |
| 146 | **(d)**  Let  Again let |
| 147 | **(b)**  We have, |
| 148 | **(d)**  Given,  On differentiating w.r.t. , we get |
| 149 | **(d)**  Let  On differentiating w.r.t. , we get  Again differentiating w.r.t. , we get |
| 150 | **(c)**  Now, |
| 151 | **(d)**  Given, is a polynomial of degree 3.  But  Now,  …(i)  …(ii)  and …(iii)  On solving Eqs. (i), (ii) and (iii), we get  and  Thus, |
| 152 | **(a)**  Given, |
| 153 | **(c)**  Given, …(i)  …(ii)  [fromEqs. (i) and (ii)] |
| 154 | **(c)**  Given, |
| 155 | **(a)**  Here, |
| 156 | **(c)**  On taking log on both sides, we get  In  On differentiating w.r.t. we get |
| 157 | **(d)**  We have, |
| 158 | **(c)** |
| 159 | **(a)**  If , then  So, statement-1 is true  We have,  for all  So, statement-II is not true |
| 160 | **(a)**  Let  Now,  Therefore, our assumption is true. |
| 161 | **(a)**  Given, |
| 163 | **(c)**  Given, |
| 164 | **(a)**  We have,  for all |
| 165 | **(b)**  Given, |
| 166 | **(b)**  We have,  Differentiating with respect to , we get |
| 167 | **(c)**  Let  On differentiating w.r.t. we get |
| 168 | **(d)**  Differentiating w.r.t. ,we get |
| 169 | **(a)**  …(i)  and  …(ii)  On adding Eqs. (i)and (ii), we get |
| 170 | **(d)**  On squaring both sides, we get |
| 172 | **(c)** |
| 173 | **(b)**  We have, |
| 175 | **(d)**  Let  On differentiating w.r.t. from 1 to times, we get |
| 176 | **(a)**  Since,  On differentiating given curves w.r.t. respectively  and  == |
| 177 | **(d)** |
| 178 | **(b)** |
| 179 | **(b)**  On differentiating w.r.t. , we get |
| 180 | **(a)**  Since,  Now, on differentiating both sides w.r.t. we get |
| 181 | **(a)**  We have, |
| 182 | **(a)**  We have,  Differentiating both sides with respect to , we get  Putting , we get |
| 183 | **(d)**  Let  On differentiating w.r.t. , we get |
| 184 | **(a)**  Since,  =0 |
| 185 | **(a)**  Again now,  …(ii)  =64 log 2 [from Eq. (ii)] |
| 186 | **(b)**  Let  and |
| 187 | **(d)** |
| 188 | **(a)**  We have, |
| 190 | **(c)**  We have,  and |
| 191 | **(d)**  Given, |
| 192 | **(c)**  Given, |
| 193 | **(b)**  We have,  ,  and so on  ,  and so on |
| 194 | **(c)**  Let .  On differentiating w.r.t. we get |
| 195 | **(a)**  Let  On differentiating w.r.t. , we get  and  Again differentiating w.r.t. , we get |
| 196 | **(b)**  We have, |
| 197 | **(b)**  Given, |
| 198 | **(a)**  Given, |
| 199 | **(d)** |
| 200 | **(a)**  We have, |
| 201 | **(b)**  Differentiating w.r.t. , we get |
| 202 | **(d)**  Let  On differentiating w.r.t. respectively, we get  and  Alternate  Let  and let  Now, |
| 203 | **(d)**  Given, |
| 204 | **(a)** |
| 205 | **(c)**  We have,  On differentiating both sides w.r.t. , we get  …(i)  Since, (given)  From Eq.(i), |
| 206 | **(c)**  We have,  …(i)  Replacing by , we get  ….(ii)  Eliminating from these two equations, we get |
| 207 | **(c)**  Since, |
| 208 | **(b)**  Given, |
| 209 | **(c)**  In the neighbourhood of , we have  Therefore, in the neighbourhood of , we have |
| 210 | **(c)**  Let  Put |
| 212 | **(c)**  We have, =+5 for all …(i)  Therefore, +5 …(ii)  From Eqs. (i) and (ii), we have  Now, |
| 213 | **(b)** |
| 214 | **(b)**  We have,  Now,  [Differentiating w.r.t. ] |
| 215 | **(a)**  Given,  Now,  and |
| 216 | **(d)**  Given,  On differentiating w.r.t. |
| 217 | **(d)**  Since,  and |
| 218 | **(c)**  We have, |
| 219 | **(c)**  On differentiating w.r.t. we get |
| 220 | **(b)**  Let  Hence, |
| 221 | **(a)**  Given that,  At point (1,1),  On differentiating Eq. (i) w.r.t. , we get  and  Again differentiating w.r.t. , we get  At |
| 222 | **(a)**  We have, |
| 223 | **(c)**  On differentiating, we get |
| 224 | **(b)**  We have, |
| 225 | **(c)**  Let  On differentiating w.r.t. respectively, we get |
| 226 | **(b)**  Given,  and  and |
| 227 | **(a)**  Given,  Taking log on both sides, we get  On differentiating w.r.t. , we get |
| 228 | **(d)**  We have, |
| 229 | **(d)**  We have,  Differentiating both sides w.r.t. , we get |
| 230 | **(c)**  Since, |
| 231 | **(b)**  On differentiating w.r.t. , we get  Again, on differentiating w.r.t. , we get |
| 232 | **(c)**  Let  On differentiating w.r.t. , we get |
| 233 | **(a)**  We have,  Put |
| 234 | **(b)**  Let  On differentiating w.r.t. , we get  Given that, |
| 235 | **(d)**  Here, is a homogenous function of degree 3. By Euler theorem, |
| 236 | **(b)**  On differentiating given curves w.r.t. respectively, we get  and =  =  = tan |
| 237 | **(b)**  Given, = |
| 238 | **(c)**  Let  Put the given equation |
| 239 | **(b)**  Let |
| 240 | **(b)**  We have,  …(i)  …(ii)  Putting in , we get  Putting in (i), we get  Putting in (ii), we get |
| 241 | **(d)**  We have,  for all  Clearly, does not exist |
| 242 | **(b)**  On differentiating w.r.t. , we get |
| 243 | **(a)**  We have, |
| 244 | **(c)**  Since,  0  [ |
| 245 | **(b)**  We have, |
| 246 | **(a)**  Since, +  Let  Now,  On differentiating w.r.t. we get  Now,  Since, |
| 247 | **(b)**  Let  Since, is an odd function.  is an odd function. |
| 248 | **(c)**  We have, |
| 249 | **(b)**  We have,  and |
| 250 | **(a)** |
| 251 | **(d)**  We have, |
| 252 | **(a)**  Given, |
| 253 | **(d)**  = |
| 254 | **(a)**  Since, |
| 255 | **(b)**  Taking log on both sides in the given equation, we get  log  on differentiating w.r.t. we get |
| 256 | **(c)**  We have, |
| 257 | **(d)**  Given,  Since, | |
| 258 | **(d)**  We have,  On differentiating w.r.t. , we get |
| 259 | **(a)** |
| 260 | **(d)** |
| 261 | **(d)**  On differentiating both sides w.r.t. , we get  or  On taking log on both sides, we get  On differentiating both sides w.r.t. , we get  or |
| 263 | **(b)**  We know that, |
| 264 | **(d)**  Given that,  On differentiating w.r.t. , we get  Again differentiating w.r.t. , we get |
| 265 | **(b)**  We have, |
| 266 | **(b)**  Since is the integral function of |
| 267 | **(c)**  On differentiating partially the given equation w.r.t. and  …(i)  and  …(ii)  On adding Eqs. (i) and (ii), we get |
| 268 | **(b)**  Thus, |
| 269 | **(c)**  We have, |
| 270 | **(c)**  We have,  Clearly, it is a polynomial of degree 90  It is given that is a polynomial of degree 20. Therefore, |
| 271 | **(d)**  Given,  =  On differentiating w.r.t. we get  = 1 |
| 272 | **(c)**  We know that be Newton’s Leibnitz formula  If ,  Then  Where and are function of |
| 273 | **(d)**  Since, |
| 274 | **(d)** |
| 275 | **(b)**  Given, |
| 277 | **(c)**  Given, |
| 278 | **(b)**  Given,  =0 |
| 279 | **(c)** |
| 280 | **(b)**  Let  and  Hence, |
| 281 | **(d)**  Given,  On differentiating w.r.t. we get |
| 282 | **(b)** |
| 283 | **(b)**  Given,  Put  =  On differentiating w.r.t. we get |
| 284 | **(c)** |
| 285 | **(c)**  We have,  Differentiating w.r.t. , we get |
| 286 | **(b)**  Given, …(i)  Where  On differentiating partially Eq. (i) w.r.t. , we get  …(ii)  Now, differentiating partially Eq. (i) w.r.t. ,we get  …(iii)  On adding Eqs. (ii) and (iii), we get |
| 287 | **(a)**  Given, |
| 288 | **(c)**  Given,  At |
| 289 | **(d)**  We have, |
| 290 | **(a)**  Since, to find  On differentiating given equation w.r.t. we get |
| 291 | **(d)**  Given,  differentiate] |
| 292 | **(c)**  …+upto terms  …+ upto terms |
| 293 | **(a)**  Given,  constant |
| 294 | **(b)**  We have, |
| 295 | **(a)**  Given that,  Taking log on both sides, we get  On differentiating w.r.t. , we get |
| 296 | **(a)**  Let ….(i)  and  Given, |
| 297 | **(b)**  Given,  Here, |
| 298 | **(d)**  On differentiating w.r.t. , we get  Again differentiating w.r.t. , we get |
| 299 | **(a)**  Given,  On differentiating both sides w.r.t. , we get  Again differentiating both sides w.r.t. , we get  At ,  As  Hence, |
| 300 | **(a)**  In the given equation put we get |
| 301 | **(a)**  On differentiating w.r.t. , we get |
| 302 | **(b)**  Let |
| 303 | **(b)**  Let  At , |
| 304 | **(b)**  We have,  for all for all |
| 305 | **(b)**  Given,  On differentiating w. r. t, , we get  at |
| 306 | **(b)**  Let  and |
| 307 | **(b)**  Given, |
| 308 | **(a)**  Given, |
| 309 | **(b)**  We have,  and |
| 310 | **(c)**  We have,  Differentiating w.r.t. , we get  Putting , we get |
| 311 | **(b)**  Let |
| 312 | **(d)**  Given,  and  Also ,  On differentiating, we get  Again differentiating, we get |
| 313 | **(b)**  On differentiating partially w.r.t. and , we get  Now, |
| 314 | **(b)**  Given,  and …(i)  Now,  [using Eq.(i)]  is a constant |
| 315 | **(d)**  Let  Put |
| 316 | **(c)**  We have, |
| 317 | **(d)**  We have,  Where  On differentiating w.r.t. we get |
| 318 | **(c)**  Given,  **Alternate** |
| 319 | **(c)**  Given,  and  …(i)  Also, …(ii)  From Eqs. (i) and (ii), we get |
| 320 | **(b)**  Given,  At |
| 321 | **(d)**  On differentiating w.r.t. we get |
| 322 | **(b)**  = =0 |
| 323 | **(d)**  We have, |
| 324 | **(d)**  Given,  At cos x is not defined.  Hence, we cannot determined the derivative at . |
| 325 | **(d)**  Given,  On differentiating w.r.t. we get  At |
| 326 | **(c)** |
| 327 | **(b)**  Let |
| 328 | **(c)**  Since,  On differentiating w.r.t. we get  But |
| 329 | **(c)**  We have,  and |
| 330 | **(b)**  Since is a polynomial of degree satisfying . Therefore,  where  Clearly, is a polynomial of degree |
| 331 | **(b)**  We have, |
| 332 | **(b)** |
| 333 | **(d)**  Hence, is a constant. |
| 334 | **(c)**  Given,  On differentiating w.r.t.we get |
| 335 | **(b)**  Given,  On differentiating w.r.t. , we get |
| 336 | **(c)**  We have,  and |
| 337 | **(b)**  Given,  On differentiating w.r.t. |
| 338 | **(a)**  = |
| 339 | **(b)**  Let  , |
| 340 | **(b)**  We have, |
| 341 | **(d)**  Let  On differentiating w.r.t. , we get  and |
| 342 | **(b)**  and |
| 343 | **(a)**  Let  Putting , we get |
| 344 | **(d)**  *,* a constant for all |
| 345 | **(b)**  We have, |
| 346 | **(a)**  We have,  Diff w.r.t. , we get |
| 347 | **(c)**  Given, |
| 348 | **(c)**  Let  Similarly, |
| 349 | **(b)**  Since,  On differentiating w.r.t. we get |
| 350 | **(d)**  We have,  and  Now, |
| 351 | **(d)**  Since,  On differentiating w.r.t. we get |