國立嘉義大學101學年度基礎學科學力競賽試題卷

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 科目：微積分 | | | | | 題型：選擇題 | | | | | 配分：100% | | | |
| **1.** | Evaluate the limit, if it exists  \_\_\_\_\_\_\_\_\_\_. | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | (C) | |  | |
|  | (D) | | Does not exist | | | |  | |  | |  | |  | |
| **2.** | Find the values of *a* and *b* that make *f* continuous everywhere. | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | (C) | |  | |
|  | (D) | |  | | | |  | |  | |  | |  | |
| **3.** | Let  , Find ? | | | | | | | | | | | | | |
|  | (A) | | 0 | | | | (B) | | 1 | | (C) | |  | |
|  | (D) | | Does not exist | | | |  | |  | |  | |  | |
| **4.** | For what values of  does the curve have maximum and minimum points?    Select the correct answer. | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | (C) | |  | |
|  | (D) | |  | | | |  | |  | |  | |  | |
|  |  | |  | | | |  | |  | |  | |  | |
| **5.** | If .  Select the correct answer. | | | | | | | | | | | | | |
|  | (A) | | 936 | | | (B) | | | 946 | | (C) | | 956 | |
|  | (D) | | None of these | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **6.** | Find an equation of the tangent to the circle at the point P(3, 4). | | | | | | | | | | | | | |
|  | (A) | |  | | | (B) | | |  | | (C) | |  | |
|  | (D) | |  | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **7.** | Find the absolute maximum (M) and minimum (m)values of the function on the given interval.  . Select the correct answer. | | | | | | | | | | | | | |
|  | (A) | | M>0, m>0. | | | (B) | | | M>0, m<0. | | (C) | | M<0, m<0 | |
|  | (D) | | M + m = 0 | | |  | | |  | |  | |  | |
| **8.** | Find the inflection points for the function given.    Select the correct answer. | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | (C) | |  | |
|  | (D) | |  | | | |  | |  | |  | |  | |
| **9.** | Find the area of the region enclosed by the line  and the curve . | | | | | | | | | | | | | |
|  | (A | | 32.75 | | | | (B) | | 31.25 | | (C) | | 30.75 | |
|  | (D | | None of these. | | | |  | |  | |  | |  | |
| **10** | Find the volume of the solid of revolution formed by rotating the region  about the  , is the region under the curve  and above the X-axis from  to . | | | | | | | | | | | | | |
|  | (A) | |  | | | | | (B) |  | | (C) | |  | |
|  | (D) | |  | | | | |  | 《背面尚有試題》 | |
|  | |  | |
| **11.** | Let = K . Select the correct answer. | | | | | | | | | | | | | |
|  | (A) | | K=1 | | | (B) | | | 0 < K < 1 | | (C) | | 1 < K < 2 | |
|  | (D) | | 2 < K < 3 | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **12.** | Evaluate the definite integral  using the fundamental theorem of calculus. | | | | | | | | | | | | | |
|  | (A) | |  | | | (B) | | |  | | (C) | |  | |
|  | (D) | |  | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **13.** | ? | | | | | | | | | | | | | |
|  | (A) | |  | | | (B) | | |  | | (C) | |  | |
|  | (D) | |  | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **14.** | ? | | | | | | | | | | | | | |
|  | (A | |  | | | (B) | | | 0 | | (C) | |  | |
|  | (D | | divergent | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **15.** | ? | | | | | | | | | | | | | |
|  | (A) | |  | | | (B) | | |  | | (C) | |  | |
|  | (D) | |  | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **16.** | Evaluate the definite integral  using the fundamental theorem of calculus. | | | | | | | | | | | | | |
|  | (A) | |  | | | (B) | | |  | | (C) | | 0 | |
|  | (D) | |  | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **17.** | For what values of p is the integral  convergent? | | | | | | | | | | | | | |
|  | (A) | | P < 1 | | | (B) | | | P = 1 | | (C) | | P > 1 | |
|  | (D) | | P > 0 . | | |  | | |  | |  | |  | |
|  |  | |  | | |  | | |  | |  | |  | |
| **18.** | Find = ? | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | (C) | |  | |
|  | (D) | |  | | | |  | |  | |  | |  | |
|  |  | |  | | | |  | |  | |  | |  | |
| **19.** | = ? | | | | | | | | | | | | | |
|  | (A) | | 31(ln2) | | | | (B) | |  | | (C) | | 31+ln2 | |
|  | (D) | | 31 | | | |  | |  | |  | |  | |
|  |  | |  | | | |  | |  | |  | |  | |
| **20.** | ? | | | | | | | | | | | | | |
|  | (A) | |  | | | | (B) | |  | | | (C) |  | |
|  | (D) | |  | | | |  | |  | | |  |  | |

《試題結束請將答案卡及試題卷一併繳回》