**西南大学计算机与信息科学学院**

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学院 专业 年级 姓名 学号

**《** 高等数学IB **》课程试题 【C】卷参考答案和评分标准**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2019～2020学年 第2学期** | | | | | | | | | | | **期****末考试** | | |
| **考试时间** | | **120分钟** | | **考核方式** | | **闭卷笔试** | | | **学生类别** | | **本科** | **人数** |  |
| **适用专业或科类** | | | | **计信院计科、软件工程、自动化专业** | | | | | | | **年级** | **2019级** | |
| **题号** | **一** | | **二** | **三** | **四** | | **五** | **六** | | **七** | **八** | **九** | **合计** |
| **得分** |  | |  |  |  | |  |  | |  |  |  |  |
| **签名** |  | |  |  |  | |  |  | |  |  |  |  |

**阅卷须知：阅卷用红色墨水笔书写，得分用阿拉伯数字写在每小题题号前，用正分表示，不得分则在题号前写0；大题得分登录在对应的分数框内；统一命题的课程应集体阅卷，流水作业；阅卷后要进行复核，发现漏评、漏记或总分统计错误应及时更正；对评定分数或统分记录进行修改时，修改人必须签名。**

**特别提醒：学生必须遵守课程考核纪律，违规者将受到严肃处**

**PLEASE ANSWER IN CHINESE OR IN ENGLISH OR BILINGUALISM!!**

1. **Fill the correct answer in the blanks (3 points each，15 points in all)**

(1)

(2).

(3)

(4)

(5)

1. **Choose the corresponding letter of the best answer that best completes the statement or answers the question among A, B, C, and D, and fill in the blanks (3 points each，15 points in all).**

(6)A(7)C(8)B(9)C(10)D

1. **Find the solutions for following problems by computing (8 points each，40 points in all)**

(11)Show that  does not exist.

**[Solution]** , and .

4 points

Thus, we get different values depending on how .

Therefore,  does not exist.

4 points

（12）Find  if .

Differentiate both side with respect to *x*, we obtain: 

2 points

Differentiate both side with respect to *y*, we obtain: 

2 points



4 points

(13), where *D* is .



2 points



4 points

2 points

(14), where *L* is consisted of line segmentand arc., from  to . , from to .

**[Solution]** Let , and . Then , and .

By Green’s Theorem, , where *D* is the region bounded

4 points

by, , and .





, from  to . 



4 points

(15), whereis the part of plane in the first octant.

**[Solution]** . 



2 points

, . 

2 points



4 points

**4. Solve the following comprehensive problems (10 points each，30 points in all)**

(16)Find the point on the paraboloid  that is closest to . What is the minimum distant?

**[Solution]** Let **** be any point on the paraboloid , the square of the distant between

and *P* is .

The problem is to find the minimum value of subject to

the constraint .

Let .

2 points

Solving ,

we have，，and .

. 

2 points

The point on the paraboloid  that is closest to  is . The

minimum distant is.

4 points

(17)Find the sum for.

**[Solution]** Let . . So,  converges when .

When  the series, , diverges. When  the series, , diverges.

Thus, the convergence set of  is . Let .

3points



3points



2points

,  .

2points

(18), where is the part of the sphere that is inside the cylinder , taking  to be upward normal.

, .

3points





3points



2points

2points