**西南大学 计算机与信息科学学院**

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**《高等数学》课程试题【B】卷参考答案和评分标准**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2018～2019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** | **400** |
| **适用专业或科类** | | | | **计科、软工、自动化专业** | | | | | | | **年级** | **2018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**

**1**(15 points).

(1)  ; (2) 1; (3) ; (4) ; (5) 

**2**(15 points). (1)—(5): ACDBA

**3.** (1) **Solution**



(8 points)

(2) **Solution** Adding *S*1： upward. (2 points)

Applying Gauss’ Formula, = (3 points)

=

=0 (3 points)

(3) **Solution** =  (4 points)

=  (4 points)

(4) **Solution** By Stokes’ Theorem， surface *S*： upward.

= （4 points）

= (4 points)

(5) **Solution** Adding *BA*: *y* = 1, *x* from 1to -1 and applying Green’s Theorem (2 points)

= (3 points)

=2e (3 points).

**4.**

(1) **Solution** Let(*x*1,*y*1) be a point lying on ，(*x*2,*y*2) on . min subject to  (2 points)

The gradient equation ， (2 points)

gives  (4 points)

*x*1=1/2,*y*1=1/4, *x*2=11/8, *y*2=-5/8，The shortest distance (2 points)

(2) **Solution** Let  (2 points)

 (3 points)

 (3 points)

*x*=1/2:  (2 points)

(3) **Proof**  Let and .

That upper half *xy*-plane is simply connected and



imply the given is path independent. (5 points)

The line integral 

 = -4. (5 points)