



将①代入上式可得  $(k^2+1)\frac{2m^2-6}{1+2k^2}-(km-k-2)\frac{4km}{1+2k^2}+(m-1)^2+4=0$ .

整理得  $(2k+3m+1)(2k+m-1)=0$ .

因为  $A(2,1)$  不在直线  $MN$  上, 所以  $2k+m-1 \neq 0$ , 故  $2k+3m+1=0$ ,  $k \neq 1$ .

于是  $MN$  的方程为  $y = k(x - \frac{2}{3}) - \frac{1}{3} (k \neq 1)$ .

所以直线  $MN$  过点  $P(\frac{2}{3}, -\frac{1}{3})$ .

若直线  $MN$  与  $x$  轴垂直, 可得  $N(x_1, -y_1)$ .

由  $\overrightarrow{AM} \cdot \overrightarrow{AN} = 0$  得  $(x_1 - 2)(x_1 - 2) + (y_1 - 1)(-y_1 - 1) = 0$ .

又  $\frac{x_1^2}{6} + \frac{y_1^2}{3} = 1$ , 可得  $3x_1^2 - 8x_1 + 4 = 0$ . 解得  $x_1 = 2$  (舍去),  $x_1 = \frac{2}{3}$ .

此时直线  $MN$  过点  $P(\frac{2}{3}, -\frac{1}{3})$ .

令  $Q$  为  $AP$  的中点, 即  $Q(\frac{4}{3}, \frac{1}{3})$ .

若  $D$  与  $P$  不重合, 则由题设知  $AP$  是  $\text{Rt}\triangle ADP$  的斜边, 故  $|DQ| = \frac{1}{2}|AP| = \frac{2\sqrt{2}}{3}$ .

若  $D$  与  $P$  重合, 则  $|DQ| = \frac{1}{2}|AP|$ .

综上, 存在点  $Q(\frac{4}{3}, \frac{1}{3})$ , 使得  $|DQ|$  为定值.

数学试题参考答案第 5 页 (共 5 页)

绝密★启用前

## 2020 年普通高等学校招生全国统一考试

英 语

注意事项:

1. 答卷前, 考生务必将自己的姓名、准考证号填写在答题卡上。
2. 回答选择题时, 选出每小题答案后, 用铅笔把答题卡上对应题目的答案标号涂黑。如需改动, 用橡皮擦干净后, 再选涂其他答案标号。回答非选择题时, 将答案写在答题卡上, 写在本试卷上无效。
3. 考试结束后, 将本试卷和答题卡一并交回。

### 第一部分 阅读 (共两节, 满分 50 分)

第一节 (共15小题;每小题2.5分,满分37.5分)

阅读下列短文,从每题所给的A、B、C、D四个选项中选出最佳选项。

## A

## POETRY CHALLENGE

Write a poem about how courage, determination, and strength have helped you face challenges in your life.

## Prizes

**3 Grand Prizes:** Trip to Washington, D.C. for each of three winners, a parent and one other person of the winner's choice. Trip includes round-trip air tickets, hotel stay for two nights, and tours of the National Air and Space Museum and the office of National Geographic World.

**6 First Prizes:** The book *Sky Pioneer: A Photobiography of Amelia Earhart* signed by author Corinne Szabo and pilot Linda Finch.

**50 Honorable Mentions:** Judges will choose up to 50 honorable mention winners, who will each receive a T-shirt in memory of Earhart's final flight.

## Rules

Follow all rules carefully to prevent disqualification.

- Write a poem using 100 words or fewer. Your poem can be any format, any number of lines.

英语试题第1页(共10页)

■ Write by hand or type on a single sheet of paper. You may use both the front and back of the paper.

■ On the same sheet of paper, write or type your name, address, telephone number, and birth date.

■ Mail your entry to us by October 31 this year.

- How many people can each grand prize winner take on the free trip?  
A. Two.                  B. Three.                  C. Four.                  D. Six.
- What will each of the honorable mention winners get?  
A. A plane ticket.                  B. A book by Corinne Szabo.  
C. A special T-shirt.                  D. A photo of Amelia Earhart.
- Which of the following will result in disqualification?  
A. Typing your poem out.                  B. Writing a poem of 120 words.  
C. Using both sides of the paper.                  D. Mailing your entry on October 30.

## B

Jennifer Mauer has needed more willpower than the typical college student to pursue her goal of earning a nursing degree. That willpower bore fruit when Jennifer graduated from University of Wisconsin-Eau Claire and became the first in her large family to earn a bachelor's degree.

Mauer, of Edgar, Wisconsin, grew up on a farm in a family of 10 children. Her dad worked at a job away from the farm, and her mother ran the farm with the kids. After high school, Jennifer attended a local technical college, working to pay her tuition (学费), because there was no extra money set aside for a college education. After graduation, she worked to help her sisters and brothers pay for their schooling.

Jennifer now is married and has three children of her own. She decided to go back to college to advance her career and to be able to better support her family while doing something she loves: nursing. She chose the UW-Eau Claire program at Ministry Saint Joseph's Hospital in Marshfield because she was able to pursue her four-year degree close to home. She could drive to class and be home in the evening to help with her kids. Jennifer received great support from her family as she worked to earn her degree: Her husband worked two jobs to cover the bills, and her 68-year-old mother helped take care of the children at times.

英语试题第2页 (共10页)

# 山东电子职业技术学院

Shandong College of Electronic Technology

招生代号:  
D856

- ◆ 山东省优质高等职业院校建设工程立项建设单位
- ◆ 山东省高等教育技能型人才培养特色名校
- ◆ 国家电子信息产业高技能人才培训基地
- ◆ 国家计算机应用及软件技术专业领域技能型紧缺人才培养学校
- ◆ 教育部——中兴通讯ICT行业创新基地

山东电子职业技术学院是由山东省人民政府举办的全日制公办普通高等职业院校,实施省工业和信息化厅与省教育厅共同领导和管理。学校是山东省技能型人才培养特色名校,山东省高等职业教育优质校立项建设单位,是“国家电子信息产业高技能人才培训基地”“全国信息产业系统先进集体”“全国职业技术教育先进单位”。连续16年保持“省级文明单位”称号。

多年来学校坚持服务于信息产业发展和信息化推广应用的办学定位,贯彻“以信息技术为主体,以机电技术和现代服务技术为两翼”的专业建设思路。设6个教学系,2个教学部,开设全日制高职专业42个,其中信息技术类专业占80%,与行业、区域经济发展高度吻

合。在全省职业院校中,电子信息类专业门类最全,规模最大、综合实力领先,专业集群发展优势突出,特色鲜明。

省级特色专业:电子信息工程技术、软件技术、计算机网络技术、电气自动化技术、电子商务。

校级特色专业:通信技术、计算机应用技术、数字媒体应用技术、动漫制作技术、机电一体化技术、新能源汽车技术、会计、物流管理、工程造价、物联网应用技术等。

学校与国内知名企业合作,通过订单式培养,现代学徒制为企业输送优秀毕业生。比如和中兴通讯、联想集团、浪潮集团、中国电子科技集团南京55所等国内知名企业合作,2020年有校企合作订单班专业15个,现代学徒制专业2个。

## 2020年招生专业共计(42个)

电子信息工程技术  
应用电子技术  
通信技术  
医疗设备应用技术  
通信工程设计与监理  
物联网应用技术  
移动互联网应用技术  
城市轨道交通运营管理  
城市轨道交通通信信号技术  
计算机网络技术  
软件技术  
信息安全与管理  
计算机应用技术  
云计算技术与应用

移动应用开发  
大数据技术与应用  
建筑智能化工程技术  
数控技术  
机电一体化技术  
电气自动化技术  
汽车检测与维修技术  
工程造价  
无人机应用技术  
工业机器人技术  
新能源汽车技术  
电子商务  
连锁经营管理  
移动商务

网络营销  
物流管理  
物流信息技术  
会计  
市场营销  
会展策划与管理  
财务管理  
金融管理  
动漫制作技术  
数字媒体应用技术  
数字展示技术  
虚拟现实应用技术  
数字媒体艺术设计  
游戏设计

具体招生计划以山东省教育厅公布的为准。

## “互联网+”成就精彩人生 成功成才相约山东电院

微信公众号

学院官网

招生咨询群

地址:济南市章丘区大学城文化路888号

电话:0531-83118111、83118771

网址:<http://www.sdcet.cn>

E-mail: [dzxyzs@163.com](mailto:dzxyzs@163.com)

微信公众号:山东电子职业技术学院招办

QQ咨询群:196501259