

國立高雄第一科技大學 97 學年度 碩士班 招生考試 試題紙

系 所 別：企業管理研究所

組 別：乙組

考科代碼：3423

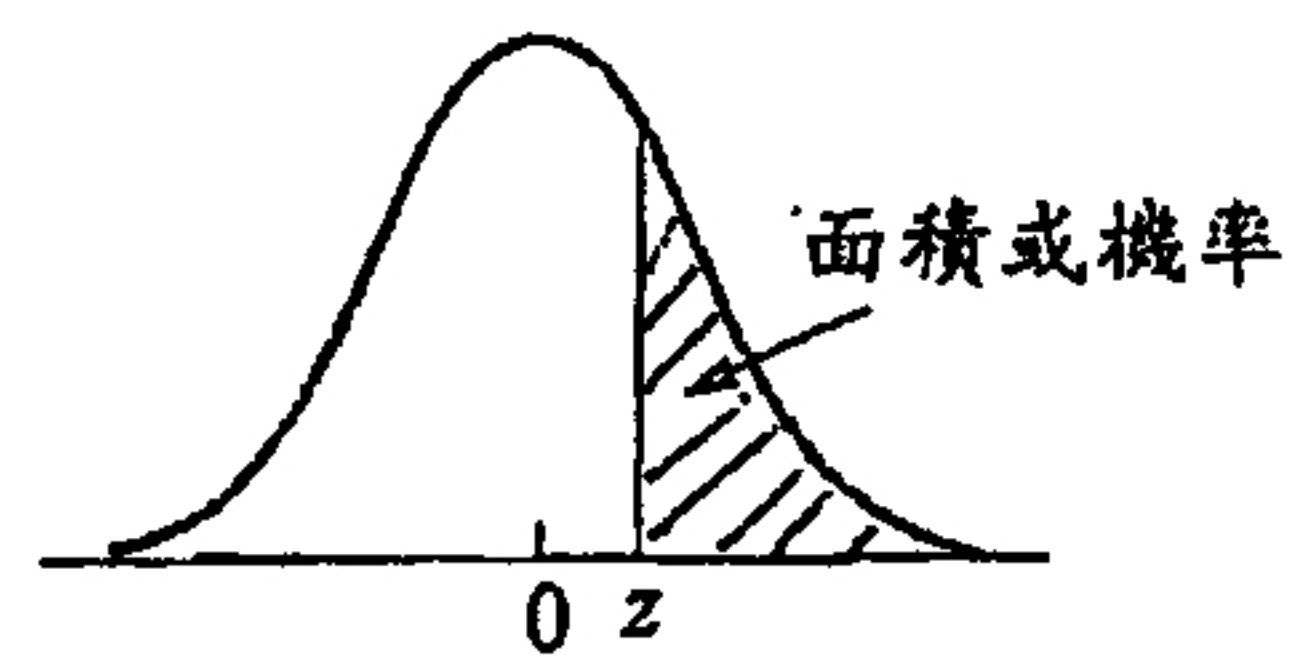
考 科：統計學

注意事項：

- 1、本科目可使用本校提供之電子計算器。
- 2、請於答案卷上規定之範圍作答，違者該題不予計分。

1. 一捷運列車於起點站與終點站間來回行駛，試問：若發生故障時，
  - a) 其比較靠近起點站之機率為何？ (10%)
  - b) 其與起點站之距離超過與終點站 3 倍距離之機率為何？ (10%)
2. 假設 A 牌電梯之最大負荷載重量，乃依循一平均數為 550 公斤，標準差為 60 公斤的常態分配。若某大樓裝了此種電梯，且經統計該電梯全年之載重資料得知：此大樓電梯之載重情形實為一平均載重量為 470 公斤，標準差為 80 公斤的常態分配。試問：該電梯於使用時會超重之機率。 (15%)
3. 設  $X$  為隨機變數，且知  $E(X)=50$ ，又  $P(X \geq 58)=0.4$ ， $P(X \leq 42)=0.4$ ，試求  $\text{Var}(X)$  之下界。 (20%)
4. 假設某一磁片生產商所生產之磁片的不良率為 0.1，而且不良磁片之發生為相互獨立。現該公司宣稱：凡其所出售之五片裝磁片，只要一片有瑕疵，消費者便可退貨。試問：
  - a) 每盒售出磁片被退貨之機率為多少？ (10%)
  - b) 某甲買了四盒磁片，且正好退貨一盒之機率為多少？ (10%)
  - c) 某乙買了一百盒磁片，則退貨數少於二十盒之機率為多少？ (10%)
5. 假設隨機變數  $W$  為抽四張撲克牌之點數和，請求出： (15%)
  - a)  $E(W)$
  - b)  $V(W)$





| z   | Second decimal place of z |       |       |       |       |       |       |       |       |       |
|-----|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|     | .00                       | .01   | .02   | .03   | .04   | .05   | .06   | .07   | .08   | .09   |
| 0.0 | .5000                     | .4960 | .4920 | .4880 | .4840 | .4801 | .4761 | .4721 | .4681 | .4641 |
| 0.1 | .4602                     | .4562 | .4522 | .4483 | .4443 | .4404 | .4364 | .4325 | .4286 | .4247 |
| 0.2 | .4207                     | .4168 | .4129 | .4090 | .4052 | .4013 | .3974 | .3936 | .3897 | .3859 |
| 0.3 | .3821                     | .3783 | .3745 | .3707 | .3669 | .3632 | .3594 | .3557 | .3520 | .3483 |
| 0.4 | .3446                     | .3409 | .3372 | .3336 | .3300 | .3264 | .3228 | .3192 | .3156 | .3121 |
| 0.5 | .3085                     | .3050 | .3015 | .2981 | .2946 | .2912 | .2877 | .2843 | .2810 | .2776 |
| 0.6 | .2743                     | .2709 | .2676 | .2643 | .2611 | .2578 | .2546 | .2514 | .2483 | .2451 |
| 0.7 | .2420                     | .2389 | .2358 | .2327 | .2296 | .2266 | .2236 | .2206 | .2177 | .2148 |
| 0.8 | .2119                     | .2090 | .2061 | .2033 | .2005 | .1977 | .1949 | .1922 | .1894 | .1867 |
| 0.9 | .1841                     | .1814 | .1788 | .1762 | .1736 | .1711 | .1685 | .1660 | .1635 | .1611 |
| 1.0 | .1587                     | .1562 | .1539 | .1515 | .1492 | .1469 | .1446 | .1423 | .1401 | .1379 |
| 1.1 | .1357                     | .1335 | .1314 | .1292 | .1271 | .1251 | .1230 | .1210 | .1190 | .1170 |
| 1.2 | .1151                     | .1131 | .1112 | .1093 | .1075 | .1056 | .1038 | .1020 | .1003 | .0985 |
| 1.3 | .0968                     | .0951 | .0934 | .0918 | .0901 | .0885 | .0869 | .0853 | .0838 | .0823 |
| 1.4 | .0808                     | .0793 | .0778 | .0764 | .0749 | .0735 | .0722 | .0708 | .0694 | .0681 |
| 1.5 | .0668                     | .0655 | .0643 | .0630 | .0618 | .0606 | .0594 | .0582 | .0571 | .0559 |
| 1.6 | .0548                     | .0537 | .0526 | .0516 | .0505 | .0495 | .0485 | .0475 | .0465 | .0455 |
| 1.7 | .0446                     | .0436 | .0427 | .0418 | .0409 | .0401 | .0392 | .0384 | .0375 | .0367 |
| 1.8 | .0359                     | .0352 | .0344 | .0336 | .0329 | .0322 | .0314 | .0307 | .0301 | .0294 |
| 1.9 | .0287                     | .0281 | .0274 | .0268 | .0262 | .0256 | .0250 | .0244 | .0239 | .0233 |
| 2.0 | .0228                     | .0222 | .0217 | .0212 | .0207 | .0202 | .0197 | .0192 | .0188 | .0183 |
| 2.1 | .0179                     | .0174 | .0170 | .0166 | .0162 | .0158 | .0154 | .0150 | .0146 | .0143 |
| 2.2 | .0139                     | .0136 | .0132 | .0129 | .0125 | .0122 | .0119 | .0116 | .0113 | .0110 |
| 2.3 | .0107                     | .0104 | .0102 | .0099 | .0096 | .0094 | .0091 | .0089 | .0087 | .0084 |
| 2.4 | .0082                     | .0080 | .0078 | .0075 | .0073 | .0071 | .0069 | .0068 | .0066 | .0064 |
| 2.5 | .0062                     | .0060 | .0059 | .0057 | .0055 | .0054 | .0052 | .0051 | .0049 | .0048 |
| 2.6 | .0047                     | .0045 | .0044 | .0043 | .0041 | .0040 | .0039 | .0038 | .0037 | .0036 |
| 2.7 | .0035                     | .0034 | .0033 | .0032 | .0031 | .0030 | .0029 | .0028 | .0027 | .0026 |
| 2.8 | .0026                     | .0025 | .0024 | .0023 | .0023 | .0022 | .0021 | .0021 | .0020 | .0019 |
| 2.9 | .0019                     | .0018 | .0017 | .0017 | .0016 | .0016 | .0015 | .0015 | .0014 | .0014 |
| 3.0 | .00135                    |       |       |       |       |       |       |       |       |       |
| 3.5 | .000233                   |       |       |       |       |       |       |       |       |       |
| 4.0 | .0000317                  |       |       |       |       |       |       |       |       |       |
| 4.5 | .00000340                 |       |       |       |       |       |       |       |       |       |
| 5.0 | .000000287                |       |       |       |       |       |       |       |       |       |

From R. E. Walpole, *Introduction to Statistics* (New York: Macmillan, 1968).