##### بسمه تعالی

###### عنوان گزارش:

بررسی تشابه چاه‌های نفتی

###### پروژه:

نفت

****

کارگروه تصمیم‌گیری هوشمند

پردیس نوآوری شهید مقدم

زمستان 1397

|  |  |
| --- | --- |
| فهرست مطالب | صفحه |

[1 طرح نیاز و تاریخچۀ تولید 3](#_Toc534390198)

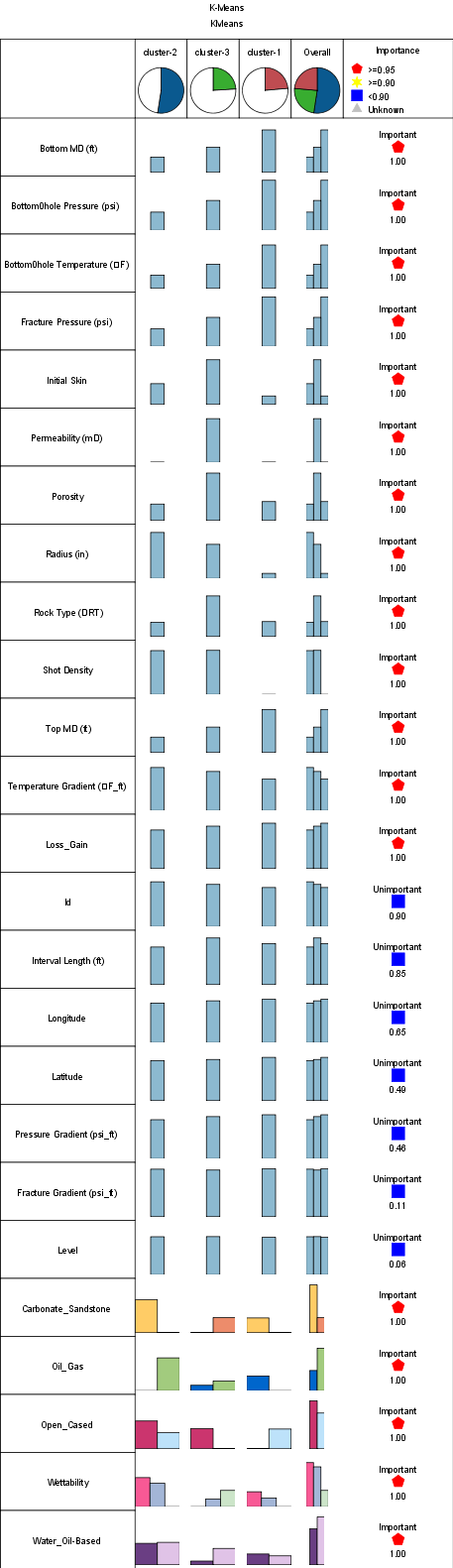
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| فهرست اشكال | صفحه |

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| فهرست جداول | صفحه |

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# مقدمه



شکل ‏1‑1 نقشه En-Route Chart برای منطقه اطراف اصفهان

جدول ‏1‑2 قیدهای عملکردی پرنده بدون سرنشین

|  |  |
| --- | --- |
| نوع | توضیح |
| کمترین شعاع چرخش | این پارامتر برای بررسی توانایی دورزدن پرنده در نزدیکی عوارض زمینی لازم است. |
| نرخ صعود و نزول | این پارامتر برای بررسی تناسب شیب مسیر پیشنهادی با توانایی‌های پرنده لازم است. |
| مصرف سوخت (تابعی از شرایط پروازی) و مقدار سوخت اولیه | این پارامتر برای مدیریت میزان سوخت باقی‌مانده در مسیر پرواز لازم است. |
| حداکثر ارتفاع پروازی پرنده از سطح دریا | این مشخصه که تابع توان موتور پرنده‌است، برای تنظیم بیشینه‌ ارتفاع پروازی پرنده از سطح دریا لازم است. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Oil/Gas** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Gas | 160 | 32.3 | 32.3 | 32.3 |
| Oil | 336 | 67.7 | 67.7 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Open/Cased** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Cased | 284 | 57.3 | 57.3 | 57.3 |
| Open | 212 | 42.7 | 42.7 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Water/Oil0Based** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Oil0Based | 213 | 42.9 | 42.9 | 42.9 |
| Water0Based | 283 | 57.1 | 57.1 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Loss/Gain** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Large Gain | 20 | 4.0 | 4.0 | 4.0 |
| Large Loss | 54 | 10.9 | 10.9 | 14.9 |
| Medium Gain | 20 | 4.0 | 4.0 | 19.0 |
| Medium Loss | 113 | 22.8 | 22.8 | 41.7 |
| No Loss | 223 | 45.0 | 45.0 | 86.7 |
| Small Gain | 30 | 6.0 | 6.0 | 92.7 |
| Small Loss | 35 | 7.1 | 7.1 | 99.8 |
| Water0Based | 1 | .2 | .2 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Carbonate/Sandstone** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Carbonate | 377 | 76.0 | 76.0 | 76.0 |
| Sandstone | 119 | 24.0 | 24.0 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Rock Type (DRT)** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 9.0 | 51 | 10.3 | 10.3 | 10.3 |
| 10.0 | 97 | 19.6 | 19.6 | 29.8 |
| 11.0 | 141 | 28.4 | 28.4 | 58.3 |
| 12.0 | 88 | 17.7 | 17.7 | 76.0 |
| 13.0 | 44 | 8.9 | 8.9 | 84.9 |
| 14.0 | 54 | 10.9 | 10.9 | 95.8 |
| 15.0 | 21 | 4.2 | 4.2 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Wettability** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Mixed0Wet | 218 | 44.0 | 44.0 | 44.0 |
| Oil0Wet | 197 | 39.7 | 39.7 | 83.7 |
| Water0Wet | 81 | 16.3 | 16.3 | 100.0 |
| Total | 496 | 100.0 | 100.0 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Cluster Membership** | | | |
| Case Number | Id | Cluster | Distance |
| 1 | 1 | 2 | 2.146 |
| 2 | 1 | 2 | 2.037 |
| 3 | 1 | 4 | 2.227 |
| 4 | 1 | 4 | 1.810 |
| 5 | 1 | 4 | 2.033 |
| 6 | 2 | 1 | 2.370 |
| 7 | 2 | 1 | 2.256 |
| 8 | 2 | 3 | 2.427 |
| 9 | 2 | 3 | 2.048 |
| 10 | 2 | 3 | 2.173 |
| 11 | 3 | 1 | 1.717 |
| 12 | 3 | 1 | 1.620 |
| 13 | 3 | 3 | 1.796 |
| 14 | 3 | 3 | 1.297 |
| 15 | 3 | 3 | 1.509 |
| 16 | 4 | 2 | 1.840 |
| 17 | 4 | 2 | 1.859 |
| 18 | 4 | 4 | 1.796 |
| 19 | 4 | 4 | 1.668 |
| 20 | 4 | 4 | 1.809 |
| 21 | 5 | 1 | 1.849 |
| 22 | 5 | 1 | 1.553 |
| 23 | 5 | 3 | 2.231 |
| 24 | 5 | 3 | 1.384 |
| 25 | 5 | 3 | 2.031 |
| 26 | 6 | 1 | 1.528 |
| 27 | 6 | 1 | 1.905 |
| 28 | 6 | 1 | 1.710 |
| 29 | 6 | 3 | 1.608 |
| 30 | 6 | 3 | 1.725 |
| 31 | 7 | 1 | 2.318 |
| 32 | 7 | 1 | 1.647 |
| 33 | 7 | 3 | 1.931 |
| 34 | 7 | 3 | 1.438 |
| 35 | 7 | 3 | 1.588 |
| 36 | 8 | 1 | 1.820 |
| 37 | 8 | 1 | 1.617 |
| 38 | 8 | 3 | 1.864 |
| 39 | 8 | 3 | 1.964 |
| 40 | 8 | 3 | 2.021 |
| 41 | 9 | 2 | 1.864 |
| 42 | 9 | 2 | 1.574 |
| 43 | 9 | 4 | 1.782 |
| 44 | 10 | 2 | 1.865 |
| 45 | 10 | 2 | 1.870 |
| 46 | 10 | 4 | 1.817 |
| 47 | 10 | 4 | 1.531 |
| 48 | 10 | 4 | 1.673 |
| 49 | 11 | 2 | 2.095 |
| 50 | 11 | 2 | 1.954 |
| 51 | 11 | 4 | 2.314 |
| 52 | 11 | 4 | 2.006 |
| 53 | 11 | 4 | 1.955 |
| 54 | 12 | 2 | 1.606 |
| 55 | 12 | 2 | 1.603 |
| 56 | 12 | 2 | 1.976 |
| 57 | 12 | 4 | 1.626 |
| 58 | 12 | 4 | 1.947 |
| 59 | 13 | 1 | 1.293 |
| 60 | 13 | 1 | 1.276 |
| 61 | 13 | 1 | 1.569 |
| 62 | 13 | 3 | 1.205 |
| 63 | 13 | 3 | 1.454 |
| 64 | 14 | 1 | 1.811 |
| 65 | 14 | 1 | 1.267 |
| 66 | 14 | 1 | 1.701 |
| 67 | 14 | 3 | 1.331 |
| 68 | 14 | 3 | 1.503 |
| 69 | 15 | 1 | 1.410 |
| 70 | 15 | 1 | 1.804 |
| 71 | 15 | 1 | 1.598 |
| 72 | 15 | 3 | 1.319 |
| 73 | 15 | 3 | 1.484 |
| 74 | 16 | 1 | 1.728 |
| 75 | 16 | 1 | 1.524 |
| 76 | 16 | 1 | 2.335 |
| 77 | 16 | 3 | 1.752 |
| 78 | 16 | 3 | 1.893 |
| 79 | 17 | 2 | 2.326 |
| 80 | 17 | 2 | 2.209 |
| 81 | 17 | 2 | 2.566 |
| 82 | 17 | 4 | 2.569 |
| 83 | 17 | 4 | 2.789 |
| 84 | 18 | 1 | 1.652 |
| 85 | 18 | 1 | 1.377 |
| 86 | 18 | 1 | 1.938 |
| 87 | 18 | 3 | 1.725 |
| 88 | 18 | 3 | 1.709 |
| 89 | 19 | 1 | 1.481 |
| 90 | 19 | 1 | 1.303 |
| 91 | 19 | 1 | 1.792 |
| 92 | 19 | 3 | 1.883 |
| 93 | 19 | 3 | 1.538 |
| 94 | 20 | 1 | 1.769 |
| 95 | 20 | 1 | 1.663 |
| 96 | 20 | 1 | 2.150 |
| 97 | 20 | 3 | 1.584 |
| 98 | 20 | 3 | 1.791 |
| 99 | 21 | 1 | 2.037 |
| 100 | 21 | 1 | 1.821 |
| 101 | 21 | 3 | 2.078 |
| 102 | 21 | 3 | 1.777 |
| 103 | 21 | 3 | 2.210 |
| 104 | 22 | 1 | 1.365 |
| 105 | 22 | 1 | 1.219 |
| 106 | 22 | 1 | 1.564 |
| 107 | 23 | 1 | 1.456 |
| 108 | 23 | 1 | 1.253 |
| 109 | 23 | 1 | 1.756 |
| 110 | 23 | 3 | 1.480 |
| 111 | 23 | 3 | 1.776 |
| 112 | 24 | 1 | 1.839 |
| 113 | 24 | 1 | 2.019 |
| 114 | 24 | 3 | 1.866 |
| 115 | 24 | 3 | 1.374 |
| 116 | 24 | 3 | 1.519 |
| 117 | 25 | 1 | 2.030 |
| 118 | 25 | 1 | 1.266 |
| 119 | 25 | 1 | 1.819 |
| 120 | 25 | 3 | 1.745 |
| 121 | 25 | 3 | 1.815 |
| 122 | 26 | 2 | 1.950 |
| 123 | 26 | 2 | 1.838 |
| 124 | 26 | 4 | 1.910 |
| 125 | 26 | 4 | 1.586 |
| 126 | 26 | 4 | 2.301 |
| 127 | 27 | 2 | 1.548 |
| 128 | 27 | 2 | 1.249 |
| 129 | 27 | 2 | 1.852 |
| 130 | 27 | 4 | 1.619 |
| 131 | 27 | 4 | 1.857 |
| 132 | 28 | 1 | 1.473 |
| 133 | 28 | 1 | 1.499 |
| 134 | 28 | 1 | 2.243 |
| 135 | 28 | 3 | 1.439 |
| 136 | 28 | 3 | 1.990 |
| 137 | 29 | 2 | 2.288 |
| 138 | 29 | 2 | 1.864 |
| 139 | 29 | 2 | 2.459 |
| 140 | 29 | 4 | 2.177 |
| 141 | 29 | 4 | 2.327 |
| 142 | 30 | 1 | 2.335 |
| 143 | 30 | 1 | 2.164 |
| 144 | 30 | 3 | 2.435 |
| 145 | 30 | 3 | 1.990 |
| 146 | 30 | 3 | 2.088 |
| 147 | 31 | 1 | 2.313 |
| 148 | 31 | 1 | 2.129 |
| 149 | 31 | 1 | 2.406 |
| 150 | 31 | 3 | 2.408 |
| 151 | 31 | 3 | 2.243 |
| 152 | 32 | 2 | 1.590 |
| 153 | 32 | 2 | 1.525 |
| 154 | 32 | 2 | 1.893 |
| 155 | 32 | 4 | 1.771 |
| 156 | 32 | 4 | 2.255 |
| 157 | 33 | 2 | 2.083 |
| 158 | 33 | 2 | 2.073 |
| 159 | 33 | 4 | 2.067 |
| 160 | 33 | 4 | 1.822 |
| 161 | 33 | 4 | 1.969 |
| 162 | 34 | 1 | 1.451 |
| 163 | 34 | 1 | 1.181 |
| 164 | 34 | 1 | 1.711 |
| 165 | 34 | 3 | 1.422 |
| 166 | 34 | 3 | 1.455 |
| 167 | 35 | 1 | 1.518 |
| 168 | 35 | 1 | 1.395 |
| 169 | 35 | 1 | 1.672 |
| 170 | 35 | 3 | 1.506 |
| 171 | 35 | 3 | 2.081 |
| 172 | 36 | 1 | 2.464 |
| 173 | 36 | 1 | 2.190 |
| 174 | 36 | 1 | 2.464 |
| 175 | 36 | 3 | 2.416 |
| 176 | 36 | 3 | 2.426 |
| 177 | 37 | 2 | 1.367 |
| 178 | 37 | 2 | .967 |
| 179 | 37 | 4 | 1.840 |
| 180 | 37 | 4 | 1.576 |
| 181 | 37 | 4 | 1.393 |
| 182 | 38 | 1 | 2.164 |
| 183 | 38 | 1 | 1.808 |
| 184 | 38 | 1 | 2.360 |
| 185 | 38 | 3 | 1.899 |
| 186 | 38 | 3 | 2.064 |
| 187 | 39 | 1 | 1.501 |
| 188 | 39 | 1 | 1.130 |
| 189 | 39 | 1 | 1.709 |
| 190 | 39 | 3 | 1.294 |
| 191 | 39 | 3 | 1.402 |
| 192 | 40 | 1 | 2.138 |
| 193 | 40 | 1 | 2.108 |
| 194 | 40 | 3 | 2.125 |
| 195 | 40 | 3 | 2.066 |
| 196 | 40 | 3 | 1.827 |
| 197 | 41 | 2 | 1.701 |
| 198 | 41 | 2 | 1.492 |
| 199 | 41 | 2 | 1.921 |
| 200 | 41 | 4 | 2.063 |
| 201 | 41 | 4 | 1.977 |
| 202 | 42 | 1 | 1.420 |
| 203 | 42 | 1 | 1.185 |
| 204 | 42 | 1 | 1.600 |
| 205 | 42 | 3 | 1.827 |
| 206 | 42 | 3 | 1.397 |
| 207 | 43 | 2 | 1.660 |
| 208 | 43 | 2 | 1.604 |
| 209 | 43 | 4 | 1.728 |
| 210 | 43 | 4 | 1.545 |
| 211 | 43 | 4 | 1.461 |
| 212 | 44 | 1 | 2.118 |
| 213 | 44 | 1 | 1.963 |
| 214 | 44 | 3 | 1.845 |
| 215 | 44 | 3 | 1.322 |
| 216 | 44 | 3 | 1.888 |
| 217 | 45 | 1 | 1.807 |
| 218 | 45 | 1 | 1.572 |
| 219 | 45 | 3 | 1.942 |
| 220 | 45 | 3 | 1.356 |
| 221 | 45 | 3 | 1.573 |
| 222 | 46 | 2 | 1.966 |
| 223 | 46 | 2 | 1.921 |
| 224 | 46 | 2 | 1.960 |
| 225 | 46 | 4 | 1.704 |
| 226 | 46 | 3 | 3.166 |
| 227 | 47 | 1 | 1.522 |
| 228 | 47 | 1 | 1.042 |
| 229 | 47 | 1 | 2.009 |
| 230 | 47 | 3 | 1.352 |
| 231 | 47 | 3 | 1.503 |
| 232 | 48 | 1 | 1.431 |
| 233 | 48 | 1 | 1.284 |
| 234 | 48 | 1 | 1.575 |
| 235 | 48 | 3 | 1.357 |
| 236 | 48 | 3 | 1.442 |
| 237 | 49 | 1 | 2.232 |
| 238 | 49 | 1 | 1.889 |
| 239 | 49 | 3 | 2.341 |
| 240 | 49 | 3 | 1.622 |
| 241 | 49 | 3 | 1.796 |
| 242 | 50 | 2 | 1.688 |
| 243 | 50 | 2 | 1.537 |
| 244 | 50 | 4 | 1.765 |
| 245 | 50 | 4 | 1.285 |
| 246 | 50 | 4 | 1.619 |
| 247 | 51 | 1 | 1.928 |
| 248 | 51 | 1 | 1.732 |
| 249 | 51 | 3 | 2.254 |
| 250 | 51 | 3 | 1.519 |
| 251 | 51 | 3 | 1.660 |
| 252 | 52 | 2 | 1.579 |
| 253 | 52 | 2 | 1.459 |
| 254 | 52 | 2 | 2.093 |
| 255 | 52 | 4 | 1.672 |
| 256 | 52 | 4 | 1.958 |
| 257 | 53 | 1 | 1.484 |
| 258 | 53 | 1 | 1.033 |
| 259 | 53 | 1 | 1.707 |
| 260 | 53 | 3 | 1.479 |
| 261 | 53 | 3 | 1.668 |
| 262 | 54 | 2 | 1.852 |
| 263 | 54 | 2 | 2.010 |
| 264 | 54 | 4 | 1.904 |
| 265 | 54 | 4 | 1.524 |
| 266 | 54 | 4 | 1.841 |
| 267 | 55 | 1 | 2.085 |
| 268 | 55 | 1 | 1.657 |
| 269 | 55 | 3 | 2.000 |
| 270 | 55 | 3 | 1.821 |
| 271 | 55 | 3 | 1.487 |
| 272 | 56 | 1 | 2.171 |
| 273 | 56 | 1 | 2.119 |
| 274 | 56 | 1 | 2.278 |
| 275 | 56 | 3 | 2.120 |
| 276 | 56 | 3 | 2.190 |
| 277 | 57 | 1 | 1.746 |
| 278 | 57 | 1 | 1.620 |
| 279 | 57 | 1 | 1.775 |
| 280 | 57 | 3 | 1.812 |
| 281 | 57 | 3 | 1.631 |
| 282 | 58 | 1 | 2.496 |
| 283 | 58 | 1 | 2.391 |
| 284 | 58 | 3 | 2.502 |
| 285 | 58 | 3 | 2.185 |
| 286 | 58 | 3 | 2.613 |
| 287 | 59 | 2 | 1.788 |
| 288 | 59 | 2 | 1.626 |
| 289 | 59 | 4 | 2.120 |
| 290 | 59 | 4 | 1.472 |
| 291 | 59 | 4 | 1.668 |
| 292 | 60 | 2 | 2.042 |
| 293 | 60 | 2 | 1.095 |
| 294 | 60 | 4 | 1.703 |
| 295 | 60 | 4 | 1.301 |
| 296 | 60 | 4 | 1.466 |
| 297 | 61 | 1 | 1.655 |
| 298 | 61 | 1 | 1.298 |
| 299 | 61 | 1 | 2.004 |
| 300 | 61 | 3 | 1.747 |
| 301 | 61 | 3 | 1.522 |
| 302 | 62 | 2 | 2.005 |
| 303 | 62 | 2 | 1.935 |
| 304 | 62 | 2 | 2.257 |
| 305 | 62 | 4 | 2.428 |
| 306 | 62 | 4 | 2.351 |
| 307 | 63 | 2 | 2.143 |
| 308 | 63 | 2 | 1.904 |
| 309 | 63 | 4 | 1.961 |
| 310 | 63 | 4 | 1.505 |
| 311 | 63 | 4 | 1.724 |
| 312 | 64 | 1 | 2.185 |
| 313 | 64 | 1 | 2.027 |
| 314 | 64 | 3 | 2.145 |
| 315 | 64 | 3 | 1.715 |
| 316 | 64 | 3 | 1.882 |
| 317 | 65 | 2 | 2.058 |
| 318 | 65 | 2 | 1.949 |
| 319 | 65 | 4 | 1.934 |
| 320 | 65 | 4 | 1.779 |
| 321 | 65 | 4 | 1.832 |
| 322 | 66 | 2 | 1.689 |
| 323 | 66 | 2 | 1.820 |
| 324 | 66 | 2 | 2.208 |
| 325 | 66 | 4 | 1.735 |
| 326 | 66 | 4 | 1.913 |
| 327 | 67 | 2 | 2.273 |
| 328 | 67 | 2 | 2.245 |
| 329 | 67 | 2 | 2.498 |
| 330 | 67 | 4 | 2.551 |
| 331 | 67 | 4 | 2.664 |
| 332 | 68 | 1 | 1.872 |
| 333 | 68 | 1 | 1.654 |
| 334 | 68 | 3 | 1.884 |
| 335 | 68 | 3 | 1.417 |
| 336 | 68 | 3 | 1.558 |
| 337 | 69 | 2 | 1.812 |
| 338 | 69 | 2 | 1.786 |
| 339 | 69 | 4 | 1.912 |
| 340 | 69 | 4 | 1.665 |
| 341 | 69 | 4 | 1.593 |
| 342 | 70 | 1 | 1.551 |
| 343 | 70 | 1 | 1.215 |
| 344 | 70 | 1 | 1.737 |
| 345 | 70 | 3 | 1.557 |
| 346 | 70 | 3 | 1.617 |
| 347 | 71 | 1 | 1.836 |
| 348 | 71 | 1 | 1.919 |
| 349 | 71 | 1 | 1.976 |
| 350 | 71 | 3 | 1.753 |
| 351 | 71 | 3 | 1.904 |
| 352 | 72 | 1 | 2.164 |
| 353 | 72 | 1 | 1.636 |
| 354 | 72 | 3 | 1.874 |
| 355 | 72 | 3 | 1.408 |
| 356 | 72 | 3 | 1.521 |
| 357 | 73 | 1 | 1.404 |
| 358 | 73 | 1 | 1.247 |
| 359 | 73 | 1 | 1.573 |
| 360 | 73 | 3 | 1.594 |
| 361 | 73 | 3 | 1.421 |
| 362 | 74 | 1 | 1.506 |
| 363 | 74 | 1 | 1.239 |
| 364 | 74 | 1 | 1.602 |
| 365 | 74 | 3 | 1.278 |
| 366 | 74 | 3 | 1.558 |
| 367 | 75 | 2 | 1.950 |
| 368 | 75 | 2 | 2.084 |
| 369 | 75 | 4 | 1.944 |
| 370 | 75 | 4 | 1.608 |
| 371 | 75 | 4 | 2.112 |
| 372 | 76 | 2 | 2.296 |
| 373 | 76 | 2 | 2.214 |
| 374 | 76 | 4 | 2.282 |
| 375 | 76 | 4 | 1.987 |
| 376 | 76 | 4 | 2.494 |
| 377 | 77 | 2 | 2.174 |
| 378 | 77 | 2 | 1.698 |
| 379 | 77 | 4 | 2.065 |
| 380 | 77 | 4 | 1.478 |
| 381 | 77 | 4 | 1.754 |
| 382 | 78 | 2 | 1.771 |
| 383 | 78 | 2 | 1.489 |
| 384 | 78 | 4 | 1.801 |
| 385 | 78 | 4 | 1.586 |
| 386 | 78 | 4 | 1.609 |
| 387 | 79 | 1 | 1.473 |
| 388 | 79 | 1 | 1.313 |
| 389 | 79 | 1 | 1.674 |
| 390 | 79 | 3 | 1.529 |
| 391 | 79 | 3 | 1.604 |
| 392 | 80 | 1 | 1.570 |
| 393 | 80 | 1 | 1.430 |
| 394 | 80 | 1 | 1.847 |
| 395 | 80 | 3 | 1.519 |
| 396 | 80 | 3 | 2.066 |
| 397 | 81 | 1 | 1.711 |
| 398 | 81 | 1 | 1.646 |
| 399 | 81 | 1 | 2.200 |
| 400 | 81 | 3 | 2.000 |
| 401 | 81 | 3 | 1.959 |
| 402 | 82 | 1 | 2.020 |
| 403 | 82 | 1 | 1.247 |
| 404 | 82 | 1 | 2.113 |
| 405 | 82 | 3 | 1.575 |
| 406 | 82 | 3 | 1.739 |
| 407 | 83 | 2 | 2.432 |
| 408 | 83 | 2 | 2.115 |
| 409 | 83 | 2 | 2.490 |
| 410 | 83 | 4 | 2.498 |
| 411 | 83 | 4 | 2.600 |
| 412 | 84 | 1 | 2.372 |
| 413 | 84 | 1 | 1.766 |
| 414 | 84 | 3 | 1.982 |
| 415 | 84 | 3 | 1.956 |
| 416 | 84 | 3 | 1.699 |
| 417 | 85 | 1 | 1.665 |
| 418 | 85 | 1 | 1.622 |
| 419 | 85 | 1 | 1.890 |
| 420 | 85 | 3 | 2.066 |
| 421 | 85 | 3 | 1.866 |
| 422 | 86 | 1 | 1.774 |
| 423 | 86 | 1 | 1.515 |
| 424 | 86 | 1 | 1.898 |
| 425 | 86 | 3 | 1.741 |
| 426 | 86 | 3 | 1.849 |
| 427 | 87 | 2 | 1.592 |
| 428 | 87 | 2 | 1.619 |
| 429 | 87 | 4 | 1.734 |
| 430 | 87 | 4 | 1.140 |
| 431 | 87 | 4 | 1.590 |
| 432 | 88 | 2 | 1.795 |
| 433 | 88 | 2 | 1.210 |
| 434 | 88 | 4 | 1.652 |
| 435 | 88 | 4 | 1.364 |
| 436 | 88 | 4 | 1.664 |
| 437 | 89 | 2 | 1.913 |
| 438 | 89 | 2 | 1.809 |
| 439 | 89 | 4 | 1.860 |
| 440 | 89 | 4 | 1.893 |
| 441 | 89 | 4 | 1.786 |
| 442 | 90 | 1 | 2.558 |
| 443 | 90 | 1 | 2.331 |
| 444 | 90 | 1 | 2.283 |
| 445 | 90 | 3 | 2.344 |
| 446 | 90 | 3 | 2.169 |
| 447 | 91 | 2 | 2.007 |
| 448 | 91 | 2 | 1.897 |
| 449 | 91 | 4 | 2.091 |
| 450 | 91 | 4 | 1.601 |
| 451 | 91 | 4 | 1.863 |
| 452 | 92 | 2 | 1.651 |
| 453 | 92 | 2 | 1.574 |
| 454 | 92 | 4 | 1.849 |
| 455 | 92 | 4 | 1.445 |
| 456 | 92 | 4 | 1.821 |
| 457 | 93 | 2 | 2.623 |
| 458 | 93 | 2 | 2.177 |
| 459 | 93 | 2 | 2.578 |
| 460 | 93 | 4 | 2.606 |
| 461 | 93 | 4 | 2.769 |
| 462 | 94 | 2 | 1.471 |
| 463 | 94 | 2 | 1.713 |
| 464 | 94 | 2 | 1.807 |
| 465 | 94 | 4 | 1.679 |
| 466 | 94 | 4 | 1.936 |
| 467 | 95 | 1 | 1.794 |
| 468 | 95 | 1 | 1.894 |
| 469 | 95 | 3 | 1.870 |
| 470 | 95 | 3 | 1.364 |
| 471 | 95 | 3 | 1.930 |
| 472 | 96 | 1 | 2.240 |
| 473 | 96 | 1 | 2.041 |
| 474 | 96 | 3 | 2.154 |
| 475 | 96 | 3 | 2.045 |
| 476 | 96 | 3 | 1.922 |
| 477 | 97 | 2 | 1.987 |
| 478 | 97 | 2 | 1.926 |
| 479 | 97 | 2 | 2.349 |
| 480 | 97 | 4 | 2.037 |
| 481 | 97 | 4 | 2.518 |
| 482 | 98 | 2 | 1.845 |
| 483 | 98 | 2 | 1.643 |
| 484 | 98 | 4 | 1.775 |
| 485 | 98 | 4 | 1.422 |
| 486 | 98 | 4 | 1.714 |
| 487 | 99 | 2 | 1.735 |
| 488 | 99 | 2 | 1.914 |
| 489 | 99 | 4 | 1.748 |
| 490 | 99 | 4 | 1.624 |
| 491 | 99 | 4 | 1.512 |
| 492 | 100 | 1 | 1.364 |
| 493 | 100 | 1 | .904 |
| 494 | 100 | 1 | 1.633 |
| 495 | 100 | 3 | 1.484 |
| 496 | 100 | 3 | 1.388 |

