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KERTAS PEPERIKSAAN INI MENGANDUNGI TUJUH [7] SOALAN DI DALAM TUJUH [7] HALAMAN.

Jawab EMPAT [4] soalan sahaja.

1. [a] Jelaskan bagaimana ukuran-ukuran kecenderungan memusat digunakan dalam menganalisis data Geografi.  
[10 markah]
- [b] Berdasarkan kepada konsep taburan normal, bagaimanakah sesuatu taburan itu menjadi pencongan positif, pencongan negatif dan bertaburan normal. Huraikan dengan bantuan gambarajah-gambarajah yang sesuai.  
[15 markah]
2. [a] Sekiranya dalam satu taburan normal, purata ( $\bar{x}$ ) ialah 80 dan sisihan piawai ( $s$ ) ialah 23, kirakan
  - [ i] kebarangkalian bagi  $x$  melebihi 103
  - [ ii] kebarangkalian  $x$  kurang daripada  $(\bar{x} - 1s)$
  - [iii] kebarangkalian untuk  $x = 90$[15 markah]
- [b] Kirakan keluasan dibawah keluk normal
  - [ i] di antara  $z = 1.3$  hingga  $z = 2.4$
  - [ ii] di antara  $z = -1.4$  hingga  $z = 1.5$
  - [iii] ke kanan daripada  $z = -0.8$[10 markah]

3. [a] Dalam musim wabak taun baru-baru ini, 12 kes dilaporkan di hari pertama, 18 kes pada hari kedua; dan 48 kes di hari ketiga. Tentukan min kadar pertumbuhan penyakit taun tersebut dengan mengandaikan pola pertumbuhan penyakit adalah berterusan.

[ 5 markah]

- [b] Dalam masa empat tahun berturut-turut, seorang pekedai membeli minyak pada harga RM1.60; RM 1.80 ; RM2.10 dan RM2.50 seliter.

Kirakan purata harga minyak tersebut,

- [ i] jika beliau membeli sejumlah 1000 liter setiap tahun?  
[ ii] jika beliau membelanjakan jumlah wang yang sama banyak setiap tahun.

[ 8 markah]

- [c] Berdasarkan data kekerapan di dalam Jadual 1 di bawah,

Jadual 1: Kekerapan kejadian hujan harian

|              |     |     |     |     |     |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| X            | 462 | 480 | 498 | 516 | 534 | 552 | 570 | 588 | 606 | 624 |
| kekerapan, f | 98  | 75  | 56  | 42  | 30  | 21  | 15  | 11  | 6   | 2   |

Kirakan;

- [ i] purata melalui kaedah biasa dan kaedah pengkodan.  
[ ii] median.

[12 markah]

.../3

4. Jadual 2 menunjukkan jumlah hujan (mm) dan pengeluaran padi ('000 tan ) di 12 kawasan tanaman padi.

Jadual 2: Jumlah hujan dan pengeluaran padi di 12 kawasan

|                             |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Hujan mm                    | 60  | 53  | 62  | 50  | 56  | 60  | 64  | 55  | 52  | 57  | 55  | 58  |
| Pengeluaran Padi ('000 tan) | 145 | 140 | 170 | 120 | 146 | 158 | 168 | 150 | 120 | 135 | 129 | 142 |

Dengan berpandukan kepada jadual tersebut, kira perkara-perkara berikut;

- [ i] Pekali korelasi (r) di antara hujan dan pengeluaran padi.
  - [ ii] Uji samada perhubungan antara hujan dan pengeluaran padi bererti atau tidak pada aras keertian 0.05 dan 0.01.
5. Jadual 3 menunjukkan keputusan peperiksaan akhir bagi matapelajaran fizik dan matematik 10 orang pelajar yang dipilih secara rambang.

Jadual 3: Keputusan peperiksaan akhir bagi matapelajaran fizik dan matematik

|                      |    |    |    |    |    |    |    |    |    |    |
|----------------------|----|----|----|----|----|----|----|----|----|----|
| Markah matematik (X) | 75 | 80 | 93 | 65 | 87 | 71 | 98 | 68 | 84 | 77 |
| Markah fizik (Y)     | 82 | 78 | 86 | 72 | 91 | 80 | 95 | 72 | 89 | 74 |

- [ i] Lukis gambarajah serakan.

[ 5 markah]

- [ ii] Dengan menggunakan kaedah kuasa dua terkecil lukis garisan regresi Y ke atas X.

[15 markah]

- [iii] Anggarkan berapakah markah mata pelajaran fizik sekiranya pelajar memperoleh 85 markah untuk matematik?

[ 5 markah]

.../4

6. Data berkualiti tinggi dan teknik pengumpulan data yang mantap penting bagi analisis yang baik.

Bincangkan pernyataan di atas dalam konteks persampelan responden bagi suatu kajian sosio-ekonomi penduduk setingan bandar di Malaysia.

[25 markah]

7. [ i] Huraikan asas-asas utama kebarangkalian.

[15 markah]

- [ ii] Dengan merujuk kepada contoh-contoh yang sesuai, bezakan taburan kebarangkalian selanjar dengan taburan kebarangkalian tidak selanjar.

[10 markah]

.../Lampiran 1  
.../5

**Lampiran 1**

Persamaan

$$Y = a_0 + a_1X$$

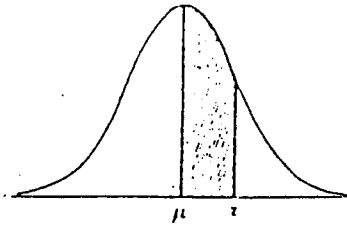
$$a_0 = \frac{(\sum Y)(\sum X^2) - (\sum X)(\sum XY)}{N\sum X^2 - (N\sum X)^2}$$

$$a_1 = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (N\sum X)^2}$$

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (N\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

$$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

Lampiran 2 (Jadual Taburan Normal)

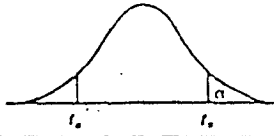


| Z   | 0.00   | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0.0 | 0.0000 | 0.0040 | 0.0080 | 0.0120 | 0.0160 | 0.0199 | 0.0239 | 0.0279 | 0.0319 | 0.0359 |
| 0.1 | .0398  | .0438  | .0478  | .0517  | .0557  | .0596  | .0636  | .0675  | .0714  | .0753  |
| 0.2 | .0793  | .0832  | .0871  | .0910  | .0948  | .0987  | .1026  | .1064  | .1103  | .1141  |
| 0.3 | .1179  | .1217  | .1255  | .1293  | .1331  | .1368  | .1406  | .1443  | .1480  | .1517  |
| 0.4 | .1554  | .1591  | .1628  | .1664  | .1700  | .1736  | .1772  | .1808  | .1844  | .1879  |
| 0.5 | .1915  | .1950  | .1985  | .2019  | .2054  | .2088  | .2123  | .2157  | .2190  | .2224  |
| 0.6 | .2257  | .2291  | .2324  | .2357  | .2389  | .2422  | .2454  | .2486  | .2517  | .2549  |
| 0.7 | .2580  | .2611  | .2642  | .2673  | .2704  | .2734  | .2764  | .2794  | .2823  | .2852  |
| 0.8 | .2881  | .2910  | .2939  | .2967  | .2995  | .3023  | .3051  | .3078  | .3106  | .3133  |
| 0.9 | .3159  | .3186  | .3212  | .3238  | .3264  | .3289  | .3315  | .3340  | .3365  | .3389  |
| 1.0 | .3413  | .3438  | .3461  | .3485  | .3508  | .3531  | .3554  | .3577  | .3599  | .3621  |
| 1.1 | .3643  | .3665  | .3686  | .3708  | .3729  | .3749  | .3770  | .3790  | .3810  | .3830  |
| 1.2 | .3849  | .3869  | .3888  | .3907  | .3925  | .3944  | .3962  | .3980  | .3997  | .4015  |
| 1.3 | .4032  | .4049  | .4066  | .4082  | .4099  | .4115  | .4131  | .4147  | .4162  | .4177  |
| 1.4 | .4192  | .4207  | .4222  | .4236  | .4251  | .4265  | .4279  | .4292  | .4306  | .4319  |
| 1.5 | .4332  | .4345  | .4357  | .4370  | .4382  | .4394  | .4406  | .4418  | .4429  | .4441  |
| 1.6 | .4452  | .4463  | .4474  | .4484  | .4495  | .4505  | .4515  | .4525  | .4535  | .4545  |
| 1.7 | .4554  | .4564  | .4573  | .4582  | .4591  | .4599  | .4608  | .4616  | .4625  | .4633  |
| 1.8 | .4641  | .4649  | .4656  | .4664  | .4671  | .4678  | .4686  | .4693  | .4699  | .4706  |
| 1.9 | .4713  | .4719  | .4726  | .4732  | .4738  | .4744  | .4750  | .4756  | .4761  | .4767  |
| 2.0 | .4772  | .4778  | .4783  | .4788  | .4793  | .4798  | .4803  | .4808  | .4812  | .4817  |
| 2.1 | .4821  | .4826  | .4830  | .4834  | .4838  | .4842  | .4846  | .4850  | .4854  | .4857  |
| 2.2 | .4861  | .4864  | .4868  | .4871  | .4875  | .4878  | .4881  | .4884  | .4887  | .4890  |
| 2.3 | .4893  | .4896  | .4898  | .4901  | .4904  | .4906  | .4909  | .4911  | .4913  | .4916  |
| 2.4 | .4918  | .4920  | .4922  | .4925  | .4927  | .4929  | .4931  | .4932  | .4934  | .4936  |
| 2.5 | .4938  | .4940  | .4941  | .4943  | .4945  | .4946  | .4948  | .4949  | .4951  | .4952  |
| 2.6 | .4953  | .4955  | .4956  | .4957  | .4959  | .4960  | .4961  | .4962  | .4963  | .4964  |
| 2.7 | .4965  | .4966  | .4967  | .4968  | .4969  | .4970  | .4971  | .4972  | .4973  | .4974  |
| 2.8 | .4974  | .4975  | .4976  | .4977  | .4977  | .4978  | .4979  | .4979  | .4980  | .4981  |
| 2.9 | .4981  | .4982  | .4982  | .4983  | .4984  | .4984  | .4985  | .4985  | .4986  | .4986  |
| 3.0 | .4987  | .4987  | .4987  | .4988  | .4988  | .4989  | .4989  | .4989  | .4990  | .4990  |
| 3.1 | .4990  | .4991  | .4991  | .4991  | .4992  | .4992  | .4992  | .4992  | .4993  | .4993  |
| 3.2 | .4993  | .4993  | .4994  | .4994  | .4994  | .4994  | .4994  | .4995  | .4995  | .4995  |
| 3.3 | .4995  | .4995  | .4995  | .4996  | .4996  | .4996  | .4996  | .4996  | .4996  | .4997  |
| 3.4 | .4997  | .4997  | .4997  | .4997  | .4997  | .4997  | .4997  | .4997  | .4997  | .4998  |
| 3.6 | .4998  | .4998  | .4999  | .4999  | .4999  | .4999  | .4999  | .4999  | .4999  | .4999  |
| 3.9 | .5000  |        |        |        |        |        |        |        |        |        |

.../Lampiran 3

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Lampiran 3 (Jadual T)



| v   | Level of significance (P) |      |      |      |       |       |       |       |       |       |        |        |        |        |        | v       |      |
|-----|---------------------------|------|------|------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|---------|------|
|     | .90                       | .80  | .70  | .60  | .50   | .40   | .30   | .25   | .20   | .10   | .05    | .025   | .02    | .01    | .005   |         | .001 |
| 1   | .158                      | .325 | .510 | .727 | 1.000 | 1.376 | 1.963 | 2.414 | 3.078 | 6.314 | 12.706 | 25.452 | 31.821 | 63.657 | 127.32 | 636.619 | 1    |
| 2   | .142                      | .289 | .445 | .617 | .816  | 1.061 | 1.386 | 1.601 | 1.888 | 2.920 | 4.303  | 6.205  | 6.965  | 9.925  | 14.089 | 31.598  | 2    |
| 3   | .137                      | .277 | .421 | .584 | .765  | .978  | 1.250 | 1.423 | 1.638 | 2.353 | 3.182  | 4.176  | 4.541  | 5.811  | 7.453  | 12.941  | 3    |
| 4   | .134                      | .271 | .414 | .569 | .741  | .941  | 1.190 | 1.341 | 1.533 | 2.132 | 2.776  | 3.495  | 3.747  | 4.604  | 5.598  | 8.610   | 4    |
| 5   | .132                      | .267 | .408 | .559 | .727  | .920  | 1.156 | 1.301 | 1.476 | 2.015 | 2.571  | 3.163  | 3.365  | 4.032  | 4.773  | 6.859   | 5    |
| 6   | .131                      | .265 | .401 | .553 | .718  | .906  | 1.134 | 1.273 | 1.440 | 1.913 | 2.447  | 2.969  | 3.143  | 3.707  | 4.317  | 5.959   | 6    |
| 7   | .130                      | .263 | .402 | .549 | .711  | .896  | 1.119 | 1.251 | 1.415 | 1.895 | 2.365  | 2.811  | 2.998  | 3.499  | 4.029  | 5.103   | 7    |
| 8   | .130                      | .262 | .399 | .546 | .706  | .889  | 1.108 | 1.240 | 1.397 | 1.860 | 2.306  | 2.752  | 2.896  | 3.355  | 3.832  | 5.011   | 8    |
| 9   | .129                      | .261 | .398 | .543 | .703  | .883  | 1.100 | 1.230 | 1.383 | 1.833 | 2.262  | 2.685  | 2.821  | 3.250  | 3.690  | 4.784   | 9    |
| 10  | .129                      | .260 | .397 | .542 | .700  | .879  | 1.093 | 1.221 | 1.372 | 1.812 | 2.228  | 2.631  | 2.761  | 3.169  | 3.581  | 4.597   | 10   |
| 11  | .129                      | .260 | .396 | .540 | .697  | .876  | 1.088 | 1.214 | 1.363 | 1.796 | 2.201  | 2.593  | 2.718  | 3.106  | 3.497  | 4.437   | 11   |
| 12  | .128                      | .259 | .395 | .539 | .695  | .873  | 1.083 | 1.209 | 1.356 | 1.782 | 2.179  | 2.560  | 2.681  | 3.055  | 3.428  | 4.318   | 12   |
| 13  | .128                      | .259 | .394 | .538 | .694  | .870  | 1.079 | 1.204 | 1.350 | 1.771 | 2.160  | 2.533  | 2.650  | 3.012  | 3.372  | 4.221   | 13   |
| 14  | .128                      | .258 | .393 | .537 | .692  | .868  | 1.076 | 1.200 | 1.345 | 1.761 | 2.145  | 2.510  | 2.624  | 2.977  | 3.326  | 4.140   | 14   |
| 15  | .128                      | .258 | .393 | .536 | .691  | .866  | 1.074 | 1.197 | 1.341 | 1.753 | 2.131  | 2.490  | 2.602  | 2.947  | 3.286  | 4.073   | 15   |
| 16  | .128                      | .258 | .392 | .535 | .690  | .865  | 1.071 | 1.194 | 1.337 | 1.746 | 2.120  | 2.473  | 2.583  | 2.921  | 3.252  | 4.015   | 16   |
| 17  | .128                      | .257 | .392 | .534 | .689  | .863  | 1.069 | 1.191 | 1.333 | 1.740 | 2.110  | 2.458  | 2.567  | 2.898  | 3.222  | 3.965   | 17   |
| 18  | .127                      | .257 | .392 | .534 | .688  | .862  | 1.067 | 1.189 | 1.330 | 1.734 | 2.101  | 2.445  | 2.552  | 2.878  | 3.197  | 3.922   | 18   |
| 19  | .127                      | .257 | .391 | .533 | .688  | .861  | 1.066 | 1.187 | 1.328 | 1.729 | 2.093  | 2.433  | 2.539  | 2.861  | 3.174  | 3.883   | 19   |
| 20  | .127                      | .257 | .391 | .533 | .687  | .860  | 1.064 | 1.185 | 1.325 | 1.725 | 2.086  | 2.423  | 2.528  | 2.845  | 3.153  | 3.859   | 20   |
| 21  | .127                      | .257 | .391 | .532 | .686  | .859  | 1.063 | 1.183 | 1.323 | 1.721 | 2.080  | 2.414  | 2.518  | 2.831  | 3.135  | 3.819   | 21   |
| 22  | .127                      | .256 | .390 | .532 | .686  | .858  | 1.061 | 1.182 | 1.321 | 1.717 | 2.074  | 2.406  | 2.508  | 2.819  | 3.119  | 3.792   | 22   |
| 23  | .127                      | .256 | .390 | .532 | .685  | .858  | 1.060 | 1.180 | 1.319 | 1.714 | 2.069  | 2.398  | 2.500  | 2.807  | 3.104  | 3.767   | 23   |
| 24  | .127                      | .256 | .390 | .531 | .685  | .857  | 1.059 | 1.179 | 1.318 | 1.711 | 2.064  | 2.391  | 2.492  | 2.797  | 3.090  | 3.745   | 24   |
| 25  | .127                      | .256 | .390 | .531 | .684  | .856  | 1.058 | 1.178 | 1.316 | 1.708 | 2.060  | 2.385  | 2.485  | 2.787  | 3.078  | 3.725   | 25   |
| 26  | .127                      | .256 | .390 | .531 | .684  | .856  | 1.058 | 1.177 | 1.315 | 1.706 | 2.056  | 2.379  | 2.479  | 2.779  | 3.067  | 3.707   | 26   |
| 27  | .127                      | .256 | .389 | .531 | .684  | .855  | 1.057 | 1.176 | 1.314 | 1.703 | 2.052  | 2.373  | 2.473  | 2.771  | 3.056  | 3.690   | 27   |
| 28  | .127                      | .256 | .389 | .530 | .683  | .855  | 1.056 | 1.175 | 1.313 | 1.701 | 2.048  | 2.368  | 2.467  | 2.763  | 3.047  | 3.674   | 28   |
| 29  | .127                      | .256 | .389 | .530 | .683  | .854  | 1.055 | 1.174 | 1.311 | 1.699 | 2.045  | 2.364  | 2.462  | 2.756  | 3.038  | 3.659   | 29   |
| 30  | .127                      | .256 | .389 | .530 | .683  | .854  | 1.055 | 1.173 | 1.310 | 1.697 | 2.042  | 2.360  | 2.457  | 2.750  | 3.030  | 3.646   | 30   |
| 40  | .126                      | .255 | .388 | .529 | .681  | .851  | 1.050 | 1.167 | 1.303 | 1.684 | 2.021  | 2.329  | 2.423  | 2.701  | 2.971  | 3.551   | 40   |
| 60  | .126                      | .254 | .387 | .527 | .679  | .848  | 1.046 | 1.162 | 1.296 | 1.671 | 2.000  | 2.299  | 2.390  | 2.660  | 2.915  | 3.460   | 60   |
| 120 | .126                      | .254 | .386 | .526 | .677  | .845  | 1.041 | 1.156 | 1.289 | 1.658 | 1.980  | 2.270  | 2.358  | 2.617  | 2.860  | 3.373   | 120  |
| ∞   | .126                      | .253 | .385 | .524 | .674  | .842  | 1.036 | 1.150 | 1.282 | 1.645 | 1.960  | 2.241  | 2.326  | 2.576  | 2.807  | 3.291   | ∞    |

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