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**Edexcel GCE**

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# Psychology

**Advanced**

**Paper 2: Applications of Psychology**

Wednesday 14 June 2017 – Afternoon

**Time: 2 hours**

Paper Reference

**9PS0/02**

**You do not need any other materials.**

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer ALL questions in Section **A**. Answer ALL questions from **one** of the three options in Section **B**.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

## Information

- The total mark for this paper is 90.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- The list of formulae and critical value tables are printed at the start of this paper.
- Candidates may use a calculator.

## Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ►

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P 4 8 5 6 8 A 0 1 4 8



Pearson

## FORMULAE AND CRITICAL VALUE TABLES

### Standard deviation (sample estimate)

$$\sqrt{\left(\frac{\sum (x - \bar{x})^2}{n - 1}\right)}$$

### Spearman's rank correlation coefficient

$$1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

### Critical values for Spearman's rank

| Level of significance for a one-tailed test |       |       |       |       |        |
|---------------------------------------------|-------|-------|-------|-------|--------|
|                                             | 0.05  | 0.025 | 0.01  | 0.005 | 0.0025 |
| Level of significance for a two-tailed test |       |       |       |       |        |
| N                                           | 0.10  | 0.05  | 0.025 | 0.01  | 0.005  |
| 5                                           | 0.900 | 1.000 | 1.000 | 1.000 | 1.000  |
| 6                                           | 0.829 | 0.886 | 0.943 | 1.000 | 1.000  |
| 7                                           | 0.714 | 0.786 | 0.893 | 0.929 | 0.964  |
| 8                                           | 0.643 | 0.738 | 0.833 | 0.881 | 0.905  |
| 9                                           | 0.600 | 0.700 | 0.783 | 0.833 | 0.867  |
| 10                                          | 0.564 | 0.648 | 0.745 | 0.794 | 0.830  |
| 11                                          | 0.536 | 0.618 | 0.709 | 0.755 | 0.800  |
| 12                                          | 0.503 | 0.587 | 0.678 | 0.727 | 0.769  |
| 13                                          | 0.484 | 0.560 | 0.648 | 0.703 | 0.747  |
| 14                                          | 0.464 | 0.538 | 0.626 | 0.679 | 0.723  |
| 15                                          | 0.446 | 0.521 | 0.604 | 0.654 | 0.700  |
| 16                                          | 0.429 | 0.503 | 0.582 | 0.635 | 0.679  |
| 17                                          | 0.414 | 0.485 | 0.566 | 0.615 | 0.662  |
| 18                                          | 0.401 | 0.472 | 0.550 | 0.600 | 0.643  |
| 19                                          | 0.391 | 0.460 | 0.535 | 0.584 | 0.628  |
| 20                                          | 0.380 | 0.447 | 0.520 | 0.570 | 0.612  |
| 21                                          | 0.370 | 0.435 | 0.508 | 0.556 | 0.599  |
| 22                                          | 0.361 | 0.425 | 0.496 | 0.544 | 0.586  |
| 23                                          | 0.353 | 0.415 | 0.486 | 0.532 | 0.573  |
| 24                                          | 0.344 | 0.406 | 0.476 | 0.521 | 0.562  |
| 25                                          | 0.337 | 0.398 | 0.466 | 0.511 | 0.551  |
| 26                                          | 0.331 | 0.390 | 0.457 | 0.501 | 0.541  |
| 27                                          | 0.324 | 0.382 | 0.448 | 0.491 | 0.531  |
| 28                                          | 0.317 | 0.375 | 0.440 | 0.483 | 0.522  |
| 29                                          | 0.312 | 0.368 | 0.433 | 0.475 | 0.513  |
| 30                                          | 0.306 | 0.362 | 0.425 | 0.467 | 0.504  |

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.



### Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E}$$

$$df = (r - 1)(c - 1)$$

### Critical values for chi-squared distribution

| Level of significance for a one-tailed test |       |       |       |       |        |        |
|---------------------------------------------|-------|-------|-------|-------|--------|--------|
|                                             | 0.10  | 0.05  | 0.025 | 0.01  | 0.005  | 0.0005 |
| Level of significance for a two-tailed test |       |       |       |       |        |        |
| df                                          | 0.20  | 0.10  | 0.05  | 0.025 | 0.01   | 0.001  |
| 1                                           | 1.64  | 2.71  | 3.84  | 5.02  | 6.64   | 10.83  |
| 2                                           | 3.22  | 4.61  | 5.99  | 7.38  | 9.21   | 13.82  |
| 3                                           | 4.64  | 6.25  | 7.82  | 9.35  | 11.35  | 16.27  |
| 4                                           | 5.99  | 7.78  | 9.49  | 11.14 | 13.28  | 18.47  |
| 5                                           | 7.29  | 9.24  | 11.07 | 12.83 | 15.09  | 20.52  |
| 6                                           | 8.56  | 10.65 | 12.59 | 14.45 | 16.81  | 22.46  |
| 7                                           | 9.80  | 12.02 | 14.07 | 16.01 | 18.48  | 24.32  |
| 8                                           | 11.03 | 13.36 | 15.51 | 17.54 | 20.09  | 26.12  |
| 9                                           | 12.24 | 14.68 | 16.92 | 19.02 | 21.67  | 27.88  |
| 10                                          | 13.44 | 15.99 | 18.31 | 20.48 | 23.21  | 29.59  |
| 11                                          | 14.63 | 17.28 | 19.68 | 21.92 | 24.73  | 31.26  |
| 12                                          | 15.81 | 18.55 | 21.03 | 23.34 | 26.22  | 32.91  |
| 13                                          | 16.99 | 19.81 | 22.36 | 24.74 | 27.69  | 34.53  |
| 14                                          | 18.15 | 21.06 | 23.69 | 26.12 | 29.14  | 36.12  |
| 15                                          | 19.31 | 22.31 | 25.00 | 27.49 | 30.58  | 37.70  |
| 16                                          | 20.47 | 23.54 | 26.30 | 28.85 | 32.00  | 39.25  |
| 17                                          | 21.62 | 24.77 | 27.59 | 30.19 | 33.41  | 40.79  |
| 18                                          | 22.76 | 25.99 | 28.87 | 31.53 | 34.81  | 42.31  |
| 19                                          | 23.90 | 27.20 | 30.14 | 32.85 | 36.19  | 43.82  |
| 20                                          | 25.04 | 28.41 | 31.41 | 34.17 | 37.57  | 45.32  |
| 21                                          | 26.17 | 29.62 | 32.67 | 35.48 | 38.93  | 46.80  |
| 22                                          | 27.30 | 30.81 | 33.92 | 36.78 | 40.29  | 48.27  |
| 23                                          | 28.43 | 32.01 | 35.17 | 38.08 | 41.64  | 49.73  |
| 24                                          | 29.55 | 33.20 | 36.42 | 39.36 | 42.98  | 51.18  |
| 25                                          | 30.68 | 34.38 | 37.65 | 40.65 | 44.31  | 52.62  |
| 26                                          | 31.80 | 35.56 | 38.89 | 41.92 | 45.64  | 54.05  |
| 27                                          | 32.91 | 36.74 | 40.11 | 43.20 | 46.96  | 55.48  |
| 28                                          | 34.03 | 37.92 | 41.34 | 44.46 | 48.28  | 56.89  |
| 29                                          | 35.14 | 39.09 | 42.56 | 45.72 | 49.59  | 58.30  |
| 30                                          | 36.25 | 40.26 | 43.77 | 46.98 | 50.89  | 59.70  |
| 40                                          | 47.27 | 51.81 | 55.76 | 59.34 | 63.69  | 73.40  |
| 50                                          | 58.16 | 63.17 | 67.51 | 71.42 | 76.15  | 86.66  |
| 60                                          | 68.97 | 74.40 | 79.08 | 83.30 | 88.38  | 99.61  |
| 70                                          | 79.72 | 85.53 | 90.53 | 95.02 | 100.43 | 112.32 |

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.



**Mann-Whitney U test formulae**

$$U_a = n_a n_b + \frac{n_a(n_a+1)}{2} - \sum R_a$$

$$U_b = n_a n_b + \frac{n_b(n_b+1)}{2} - \sum R_b$$

(U is the smaller of  $U_a$  and  $U_b$ )

**Critical values for the Mann-Whitney U test**

| $N_a$                                                                               | $N_b$ |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|-------------------------------------------------------------------------------------|-------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|                                                                                     | 5     | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15  | 16  | 17  | 18  | 19  | 20  |
| <b><math>p \leq 0.05</math> (one-tailed), <math>p \leq 0.10</math> (two-tailed)</b> |       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| <b>5</b>                                                                            | 4     | 5  | 6  | 8  | 9  | 11 | 12 | 13 | 15 | 16 | 18  | 19  | 20  | 22  | 23  | 25  |
| <b>6</b>                                                                            | 5     | 7  | 8  | 10 | 12 | 14 | 16 | 17 | 19 | 21 | 23  | 25  | 26  | 28  | 30  | 32  |
| <b>7</b>                                                                            | 6     | 8  | 11 | 13 | 15 | 17 | 19 | 21 | 24 | 26 | 28  | 30  | 33  | 35  | 37  | 39  |
| <b>8</b>                                                                            | 8     | 10 | 13 | 15 | 18 | 20 | 23 | 26 | 28 | 31 | 33  | 36  | 39  | 41  | 44  | 47  |
| <b>9</b>                                                                            | 9     | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39  | 42  | 45  | 48  | 51  | 54  |
| <b>10</b>                                                                           | 11    | 14 | 17 | 20 | 24 | 27 | 31 | 34 | 37 | 41 | 44  | 48  | 51  | 55  | 58  | 62  |
| <b>11</b>                                                                           | 12    | 16 | 19 | 23 | 27 | 31 | 34 | 38 | 42 | 46 | 50  | 54  | 57  | 61  | 65  | 69  |
| <b>12</b>                                                                           | 13    | 17 | 21 | 26 | 30 | 34 | 38 | 42 | 47 | 51 | 55  | 60  | 64  | 68  | 72  | 77  |
| <b>13</b>                                                                           | 15    | 19 | 24 | 28 | 33 | 37 | 42 | 47 | 51 | 56 | 61  | 65  | 70  | 75  | 80  | 84  |
| <b>14</b>                                                                           | 16    | 21 | 26 | 31 | 36 | 41 | 46 | 51 | 56 | 61 | 66  | 71  | 77  | 82  | 87  | 92  |
| <b>15</b>                                                                           | 18    | 23 | 28 | 33 | 39 | 44 | 50 | 55 | 61 | 66 | 72  | 77  | 83  | 88  | 94  | 100 |
| <b>16</b>                                                                           | 19    | 25 | 30 | 36 | 42 | 48 | 54 | 60 | 65 | 71 | 77  | 83  | 89  | 95  | 101 | 107 |
| <b>17</b>                                                                           | 20    | 26 | 33 | 39 | 45 | 51 | 57 | 64 | 70 | 77 | 83  | 89  | 96  | 102 | 109 | 115 |
| <b>18</b>                                                                           | 22    | 28 | 35 | 41 | 48 | 55 | 61 | 68 | 75 | 82 | 88  | 95  | 102 | 109 | 116 | 123 |
| <b>19</b>                                                                           | 23    | 30 | 37 | 44 | 51 | 58 | 65 | 72 | 80 | 87 | 94  | 101 | 109 | 116 | 123 | 130 |
| <b>20</b>                                                                           | 25    | 32 | 39 | 47 | 54 | 62 | 69 | 77 | 84 | 92 | 100 | 107 | 115 | 123 | 130 | 138 |



| $N_a$                                                                               | $N_b$ |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |
|-------------------------------------------------------------------------------------|-------|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|
|                                                                                     | 5     | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18  | 19  | 20  |
| <b><math>p \leq 0.01</math> (one-tailed), <math>p \leq 0.02</math> (two-tailed)</b> |       |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |
| <b>5</b>                                                                            | 1     | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14  | 15  | 16  |
| <b>6</b>                                                                            | 2     | 3  | 4  | 6  | 7  | 8  | 9  | 11 | 12 | 13 | 15 | 16 | 18 | 19  | 20  | 22  |
| <b>7</b>                                                                            | 3     | 4  | 6  | 7  | 9  | 11 | 12 | 14 | 16 | 17 | 19 | 21 | 23 | 24  | 26  | 28  |
| <b>8</b>                                                                            | 4     | 6  | 7  | 9  | 11 | 13 | 15 | 17 | 20 | 22 | 24 | 26 | 28 | 30  | 32  | 34  |
| <b>9</b>                                                                            | 5     | 7  | 9  | 11 | 14 | 16 | 18 | 21 | 23 | 26 | 28 | 31 | 33 | 36  | 38  | 40  |
| <b>10</b>                                                                           | 6     | 8  | 11 | 13 | 16 | 19 | 22 | 24 | 27 | 30 | 33 | 36 | 38 | 41  | 44  | 47  |
| <b>11</b>                                                                           | 7     | 9  | 12 | 15 | 18 | 22 | 25 | 28 | 31 | 34 | 37 | 41 | 44 | 47  | 50  | 53  |
| <b>12</b>                                                                           | 8     | 11 | 14 | 17 | 21 | 24 | 28 | 31 | 35 | 38 | 42 | 46 | 49 | 53  | 56  | 60  |
| <b>13</b>                                                                           | 9     | 12 | 16 | 20 | 23 | 27 | 31 | 35 | 39 | 43 | 47 | 51 | 55 | 59  | 63  | 67  |
| <b>14</b>                                                                           | 10    | 13 | 17 | 22 | 26 | 30 | 34 | 38 | 43 | 47 | 51 | 56 | 60 | 65  | 69  | 73  |
| <b>15</b>                                                                           | 11    | 15 | 19 | 24 | 28 | 33 | 37 | 42 | 47 | 51 | 56 | 61 | 66 | 70  | 75  | 80  |
| <b>16</b>                                                                           | 12    | 16 | 21 | 26 | 31 | 36 | 41 | 46 | 51 | 56 | 61 | 66 | 71 | 76  | 82  | 87  |
| <b>17</b>                                                                           | 13    | 18 | 23 | 28 | 33 | 38 | 44 | 49 | 55 | 60 | 66 | 71 | 77 | 82  | 88  | 93  |
| <b>18</b>                                                                           | 14    | 19 | 24 | 30 | 36 | 41 | 47 | 53 | 59 | 65 | 70 | 76 | 82 | 88  | 94  | 100 |
| <b>19</b>                                                                           | 15    | 20 | 26 | 32 | 38 | 44 | 50 | 56 | 63 | 69 | 75 | 82 | 88 | 94  | 101 | 107 |
| <b>20</b>                                                                           | 16    | 22 | 28 | 34 | 40 | 47 | 53 | 60 | 67 | 73 | 80 | 87 | 93 | 100 | 107 | 114 |

| $N_a$                                                                                | $N_b$ |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |
|--------------------------------------------------------------------------------------|-------|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
|                                                                                      | 5     | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17  | 18  | 19  | 20  |
| <b><math>p \leq 0.025</math> (one-tailed), <math>p \leq 0.05</math> (two-tailed)</b> |       |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |
| <b>5</b>                                                                             | 2     | 3  | 5  | 6  | 7  | 8  | 9  | 11 | 12 | 13 | 14 | 15 | 17  | 18  | 19  | 20  |
| <b>6</b>                                                                             | 3     | 5  | 6  | 8  | 10 | 11 | 13 | 14 | 16 | 17 | 19 | 21 | 22  | 24  | 25  | 27  |
| <b>7</b>                                                                             | 5     | 6  | 8  | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28  | 30  | 32  | 34  |
| <b>8</b>                                                                             | 6     | 8  | 10 | 13 | 15 | 17 | 19 | 22 | 24 | 26 | 29 | 31 | 34  | 36  | 38  | 41  |
| <b>9</b>                                                                             | 7     | 10 | 12 | 15 | 17 | 20 | 23 | 26 | 28 | 31 | 34 | 37 | 39  | 42  | 45  | 48  |
| <b>10</b>                                                                            | 8     | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 33 | 36 | 39 | 42 | 45  | 48  | 52  | 55  |
| <b>11</b>                                                                            | 9     | 13 | 16 | 19 | 23 | 26 | 30 | 33 | 37 | 40 | 44 | 47 | 51  | 55  | 58  | 62  |
| <b>12</b>                                                                            | 11    | 14 | 18 | 22 | 26 | 29 | 33 | 37 | 41 | 45 | 49 | 53 | 57  | 61  | 65  | 69  |
| <b>13</b>                                                                            | 12    | 16 | 20 | 24 | 28 | 33 | 37 | 41 | 45 | 50 | 54 | 59 | 63  | 67  | 72  | 76  |
| <b>14</b>                                                                            | 13    | 17 | 22 | 26 | 31 | 36 | 40 | 45 | 50 | 55 | 59 | 64 | 67  | 74  | 78  | 83  |
| <b>15</b>                                                                            | 14    | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 59 | 64 | 70 | 75  | 80  | 85  | 90  |
| <b>16</b>                                                                            | 15    | 21 | 26 | 31 | 37 | 42 | 47 | 53 | 59 | 64 | 70 | 75 | 81  | 86  | 92  | 98  |
| <b>17</b>                                                                            | 17    | 22 | 28 | 34 | 39 | 45 | 51 | 57 | 63 | 67 | 75 | 81 | 87  | 93  | 99  | 105 |
| <b>18</b>                                                                            | 18    | 24 | 30 | 36 | 42 | 48 | 55 | 61 | 67 | 74 | 80 | 86 | 93  | 99  | 106 | 112 |
| <b>19</b>                                                                            | 19    | 25 | 32 | 38 | 45 | 52 | 58 | 65 | 72 | 78 | 85 | 92 | 99  | 106 | 113 | 119 |
| <b>20</b>                                                                            | 20    | 27 | 34 | 41 | 48 | 55 | 62 | 69 | 76 | 83 | 90 | 98 | 105 | 112 | 119 | 127 |



| $N_a$                                                                                | $N_b$ |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
|--------------------------------------------------------------------------------------|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
|                                                                                      | 5     | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| <b><math>p \leq 0.005</math> (one-tailed), <math>p \leq 0.01</math> (two-tailed)</b> |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| <b>5</b>                                                                             | 0     | 1  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 7  | 8  | 9  | 10 | 11 | 12 | 13  |
| <b>6</b>                                                                             | 1     | 2  | 3  | 4  | 5  | 6  | 7  | 9  | 10 | 11 | 12 | 13 | 15 | 16 | 17 | 18  |
| <b>7</b>                                                                             | 1     | 3  | 4  | 6  | 7  | 9  | 10 | 12 | 13 | 15 | 16 | 18 | 19 | 21 | 22 | 24  |
| <b>8</b>                                                                             | 2     | 4  | 6  | 7  | 9  | 11 | 13 | 15 | 17 | 18 | 20 | 22 | 24 | 26 | 28 | 30  |
| <b>9</b>                                                                             | 3     | 5  | 7  | 9  | 11 | 13 | 16 | 18 | 20 | 22 | 24 | 27 | 29 | 31 | 33 | 36  |
| <b>10</b>                                                                            | 4     | 6  | 9  | 11 | 13 | 16 | 18 | 21 | 24 | 26 | 29 | 31 | 34 | 37 | 39 | 42  |
| <b>11</b>                                                                            | 5     | 7  | 10 | 13 | 16 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | 48  |
| <b>12</b>                                                                            | 6     | 9  | 12 | 15 | 18 | 21 | 24 | 27 | 31 | 34 | 37 | 41 | 44 | 47 | 51 | 54  |
| <b>13</b>                                                                            | 7     | 10 | 13 | 17 | 20 | 24 | 27 | 31 | 34 | 38 | 42 | 45 | 49 | 53 | 56 | 60  |
| <b>14</b>                                                                            | 7     | 11 | 15 | 18 | 22 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 58 | 63 | 67  |
| <b>15</b>                                                                            | 8     | 12 | 16 | 20 | 24 | 29 | 33 | 37 | 42 | 46 | 51 | 55 | 60 | 64 | 69 | 73  |
| <b>16</b>                                                                            | 9     | 13 | 18 | 22 | 27 | 31 | 36 | 41 | 45 | 50 | 55 | 60 | 65 | 70 | 74 | 79  |
| <b>17</b>                                                                            | 10    | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 60 | 65 | 70 | 75 | 81 | 86  |
| <b>18</b>                                                                            | 11    | 16 | 21 | 26 | 31 | 37 | 42 | 47 | 53 | 58 | 64 | 70 | 75 | 81 | 87 | 92  |
| <b>19</b>                                                                            | 12    | 17 | 22 | 28 | 33 | 39 | 45 | 51 | 56 | 63 | 69 | 74 | 81 | 87 | 93 | 99  |
| <b>20</b>                                                                            | 13    | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 67 | 73 | 79 | 86 | 92 | 99 | 105 |

The calculated value must be equal to or less than the critical value in this table for significance to be shown.



### Wilcoxon Signed Ranks test process

- Calculate the difference between two scores by taking one from the other
- Rank the differences giving the smallest difference Rank 1

Note: do not rank any differences of 0 and when adding the number of scores, do not count those with a difference of 0, and ignore the signs when calculating the difference

- Add up the ranks for positive differences
- Add up the ranks for negative differences
- T is the figure that is the smallest when the ranks are totalled (may be positive or negative)
- N is the number of scores left, ignore those with 0 difference

### Critical values for the Wilcoxon Signed Ranks test

| <i>n</i> | Level of significance for a one-tailed test |       |      |
|----------|---------------------------------------------|-------|------|
|          | 0.05                                        | 0.025 | 0.01 |
|          | Level of significance for a two-tailed test |       |      |
|          | 0.1                                         | 0.05  | 0.02 |
| N=5      | 0                                           | –     | –    |
| 6        | 2                                           | 0     | –    |
| 7        | 3                                           | 2     | 0    |
| 8        | 5                                           | 3     | 1    |
| 9        | 8                                           | 5     | 3    |
| 10       | 11                                          | 8     | 5    |
| 11       | 13                                          | 10    | 7    |
| 12       | 17                                          | 13    | 9    |

The calculated value must be equal to or less than the critical value in this table for significance to be shown.



## SECTION A: CLINICAL PSYCHOLOGY

Answer ALL questions.

1 Tanya has been diagnosed with schizophrenia.

(a) Describe the symptoms of schizophrenia that Tanya may be experiencing.

(4)

*Tanya may experience positive symptoms such as hallucinations, where she perceives something that is not there, for example hearing voices telling her that she is useless or commenting on what she is doing.*

*She may have delusions, which are firmly held false beliefs, such as delusions of persecution where Tanya believes that people are plotting against her or spying on her.*

*Tanya may also show thought disorder, so her speech may be disorganised and jump between unrelated topics.*

*She may have negative symptoms such as avolition (poor motivation), which could affect her ability to hold down a job or look after herself, and flattened affect, where she shows little emotion.*

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



(b) Compare **two** explanations of schizophrenia.

(4)

*Similarity: both the dopamine hypothesis (biological) and the cognitive explanation (Frith) accept that high dopamine activity can lead to positive symptoms such as hallucinations, as the cognitive explanation sees faulty information processing as having a biological basis.*

*Difference: the dopamine hypothesis says schizophrenia is caused by excess dopamine activity at D2 receptors in the mesolimbic pathway, whereas Frith says it is caused by faulty metarepresentation, an inability to recognise internal thoughts and actions as coming from ourselves, so inner speech is heard as external voices.*

*Difference: the cognitive explanation says that other symptoms, such as distrust of others and delusions, come from trying to make sense of these abnormal experiences, whereas the biological explanation does not look beyond biological causes for all of the symptoms.*

*Similarity: both explanations have led to effective treatments, as the dopamine hypothesis led to antipsychotic drugs that block dopamine receptors, and the cognitive explanation led to CBT (CBTp), which helps patients to challenge their faulty beliefs.*

(Total for Question 1 = 8 marks)



P 4 8 5 6 8 A 0 9 4 8

- 2 Philip is a psychology student. His friend has just been diagnosed with a mental health disorder using a classification system, such as the DSM or ICD. Philip is concerned about the reliability of the diagnosis following his lessons in psychology.

Explain whether Philip should be concerned about the reliability of his friend's diagnosis.

(4)

*It depends on which disorder his friend has and which classification system was used. If the DSM-5 was used and his friend was diagnosed with schizophrenia, Philip is right to be concerned, as the DSM-5 field trials found an inter-rater reliability (kappa) of only 0.46 for schizophrenia (Regier et al., 2013).*

*However, if his friend was diagnosed with PTSD, reliability in the same trials was good to very good (kappa 0.67), so Philip would not need to worry as much.*

*If DSM-IV was used and his friend has a mood or anxiety disorder, reliability was found to be good to excellent, so the diagnosis is likely to be consistent between clinicians.*

*If ICD-10 was used for an eating disorder, Philip is right to be concerned, as Nicholls et al. (2000) found only 36% agreement between clinicians using ICD-10 for eating disorders in children.*

(Total for Question 2 = 4 marks)



- 3 A group of psychiatrists conducted research with patients experiencing depression. They asked the patients to rate their mood every day over a month, using a scale where 1 was extremely happy and 10 was extremely unhappy.

The results for patients with depression are in **Table 1** below.

|                     | Average mood score for patients with depression over the last month |
|---------------------|---------------------------------------------------------------------|
| Patient 1           | 5                                                                   |
| Patient 2           | 6                                                                   |
| Patient 3           | 3                                                                   |
| Patient 4           | 7                                                                   |
| Patient 5           | 4                                                                   |
| Patient 6           | 4                                                                   |
| Patient 7           | 5                                                                   |
| Patient 8           | 7                                                                   |
| Patient 9           | 7                                                                   |
| Patient 10          | 6                                                                   |
| <b>Mean score</b>   | 5.4                                                                 |
| <b>Median score</b> | 5.5                                                                 |
| <b>Mode score</b>   | 7                                                                   |

**Table 1**

- (a) Calculate the measures of central tendency for the data in **Table 1** and **complete Table 1** with your answers.

(3)

**SPACE FOR CALCULATIONS**

$$\text{Mean} = (5+6+3+7+4+4+5+7+7+6) \div 10 = 54 \div 10 = 5.4$$

$$\text{Median: } 3, 4, 4, 5, 5, 6, 6, 7, 7, 7 \text{ so } (5 + 6) \div 2 = 5.5$$

$$\text{Mode: } 7 \text{ occurs most often (three times)} = 7$$



(b) Define what is meant by the term 'a measure of dispersion'.

(1)

*A measure of dispersion shows how far the scores are spread out from the measure of central tendency (the mean), for example the range or standard deviation.*

(c) A group of patients without depression were asked to rate their mood every day over a month to act as a control group.

The psychiatrists calculated the standard deviation for the mood score for patients with depression. The psychiatrists found a standard deviation of 1.43 for the mood score for the patients with depression.

The psychiatrists found a standard deviation of 3.46 for the mood score of patients without depression.

Interpret what the two standard deviations tell us about the results.

(2)

*The SD for patients without depression (3.46) is larger than for patients with depression (1.43), by 2.03, so the mood scores of patients without depression are more spread out from the mean, while those of patients with depression are more consistent.*

**(Total for Question 3 = 6 marks)**



#### 4 Interviews are one research method used within clinical psychology.

Evaluate the use of interviews within clinical psychology.

(8)

Interviews are a self-report method in which the psychiatrist or psychologist asks a patient questions face to face. Structured interviews use a fixed set of questions in a set order, and these can be closed questions with a limited set of answers, such as rating how often a symptom occurs, which produce quantitative data. Semi-structured interviews have a set of questions that must be asked, but the interviewer can add questions to follow themes they see as important. Unstructured interviews have no fixed questions, and the interviewer decides what to ask based on the patient's previous answers. Open questions let the patient answer freely in their own words, producing qualitative data.

A strength of open questions is that they allow patients to express fully how they are feeling, which can give the clinician a deeper insight into their problems and experiences, such as what voices a person with schizophrenia hears and how they feel about them. This gives rich, valid qualitative data that a questionnaire with fixed answers could miss. However, if open questions are used, the psychiatrist has to decide on the important themes in the answers, for example using thematic analysis, and this can be subjective, so their own expectations may bias the interpretation.

Unstructured interviews lack reliability, as no two patients will be asked exactly the same questions, so their answers cannot be easily compared and the interview cannot be replicated. Structured interviews such as the SCID (Structured Clinical Interview for DSM) improve reliability because every patient is asked the same questions, which helps diagnosis to be consistent between clinicians.

If interviews are recorded and transcribed, other researchers can play the recordings back and check the interpretation of the results, giving inter-rater reliability. A further



weakness is that patients may give socially desirable answers, or may lack insight into their own symptoms, which reduces validity.

In conclusion, interviews are very useful in clinical psychology because they give detailed and valid data about a patient's experiences, but more structured interviews are needed when reliability and comparison between patients matter, so semi-structured interviews may be the best balance.

(Total for Question 4 = 8 marks)



- 5 Rachel is concerned that her friend, Alice, may have a mental disorder. Alice has started to talk to herself in public. She has also stopped going out with her friends to avoid other people looking at her and embarrassing her friends.

Alice will only eat white food, and she refuses to go out in the day light because she feels it will cause her to catch fire. She has started to think that she has supernatural powers, such as being able to turn into a bat.

Discuss the diagnosis of mental disorders in terms of deviance and dysfunction. You must make reference to the context in your answer.

(8)

Deviance means behaviour that goes against the social norms of a society, so it is seen as unusual or unacceptable. What is considered deviant can change across time and place as social norms change, for example homosexuality was listed as a mental disorder in the DSM until 1973. Dysfunction means behaviour that interferes with a person's everyday life, so they cannot carry out normal day-to-day activities such as going to work, looking after themselves or keeping relationships. Rosenhan and Seligman (1989) suggested that deviance and dysfunction, along with distress, are features that can be used to decide whether behaviour is abnormal, and DSM-5 requires that symptoms cause significant distress or impairment in social or occupational functioning.

Alice's talking to herself in public can be seen as deviant, as it breaks the social norm that people do not speak aloud to no one in public. The fact that Alice will only eat white food may also be classed as deviant, as most people eat food regardless of its colour. Her belief that she has supernatural powers and can turn into a bat goes far beyond what her culture would accept, so it is deviant and could be a delusion.

Alice has stopped going out with her friends, which is dysfunctional because it is damaging her social relationships. Refusing to go out in daylight because she thinks she will catch fire is also dysfunctional, as it limits the activities she can take part in, such as working, studying or shopping during the day.

However, deviance alone is not a good way of diagnosing a mental disorder, as it depends on cultural relativism. Talking to yourself is now more common, as people talk



on hands-free phones, and eating only white food may be a personal preference, so Rachel could be labelling Alice unfairly. There is also a danger that deviance is used to control people who do not conform.

Dysfunction is more useful because it focuses on how Alice's behaviour affects her life, and her avoiding daylight and friends clearly harms her functioning. Yet some dysfunction is chosen, for example Alice may avoid friends to stop embarrassing them, which shows some insight. Overall, Alice's behaviour is both deviant and dysfunctional, which, together with her apparent distress, suggests she should be assessed by a clinician using DSM-5 criteria rather than either feature being used alone.

(Total for Question 5 = 8 marks)



6 Evaluate a contemporary study on a disorder **other than** schizophrenia.

(20)

Name of study *Williams et al. (2013)*

*Williams et al. (2013) aimed to find out whether combining internet-based cognitive bias modification for interpretation (CBM-I) with internet-based cognitive behavioural therapy (iCBT) would be an effective treatment for major depressive disorder. CBM-I uses imagery to train people to interpret ambiguous situations positively rather than negatively.*

*Applicants were recruited through an online clinic in Australia. They completed online screening questionnaires about their symptoms using established measures such as the PHQ-9, and those who met the criteria for major depressive disorder were then given a diagnostic telephone interview. People with other disorders such as psychosis, bipolar disorder or substance misuse were excluded. 69 participants were randomly allocated to either the treatment group or a waiting-list control group.*

*The treatment group completed one week of CBM-I, in which they listened to and imagined positive outcomes to ambiguous scenarios, and then completed a questionnaire after the CBM-I. They then took a 10-week course of iCBT, the Sadness Program, with six online lessons. The control group waited for treatment. Depression was measured using self-report scales such as the BDI-II and PHQ-9 before and after treatment.*

*Depression and anxiety scores fell significantly for the treatment group compared with the waiting-list group, and around 65% of participants who had the combined treatment showed a significant reduction in their depression. Williams et al. concluded that the combined intervention is effective in improving depression and anxiety symptoms in patients with depression.*

*A strength of the study is its sampling. Because participants were recruited over the internet, people from all over Australia could take part, so the sample was not limited to one town or clinic, which improves generalisability to Australians with depression who*



use the internet.

The study also has strong validity in its measurement of depression. Participants completed online screening questionnaires using established, standardised measures such as the PHQ-9, which have been shown to be valid measures of depression. The online screening was then checked against a diagnostic telephone interview, so the diagnosis of major depressive disorder was confirmed in two ways, which increases the reliability of the sample selection.

Excluding participants with other mental disorders, such as substance misuse, was a good control, as the researchers could be more certain that comorbid disorders did not affect the results. Random allocation to the treatment or waiting-list group also controlled participant variables, so differences in improvement are more likely to be caused by the treatment, which gives the study internal validity.

The study was ethical. It was approved by the human research ethics committee of St Vincent's Hospital in Sydney, and participants had the right to withdraw, which they used, as participants dropped out at different stages of the study. The control group were also offered the treatment after the waiting period, so they were not denied help.

However, the restrictive inclusion criteria reduce generalisability. Because people with other disorders were excluded, and the sample did not include groups such as people over 65, the results may not apply to the many patients who have depression alongside another disorder, which is common in real clinical practice.

There was also a high level of attrition. Of the 69 participants who started, only 44 completed the treatment, so the treatment may not have worked for the 25 who withdrew. If those who dropped out were the ones who did not improve, the results would overestimate how effective the treatment is, which affects the validity of the findings.

The final measures were self-report and not diagnostic, so participants may have shown



demand characteristics or social desirability bias, reporting that they felt better because they knew they had received a treatment. The waiting-list group did not receive a placebo, so the improvement could partly be a placebo effect.

It is also hard to know which part of the treatment caused the improvement. CBM-I may simply have increased participants' motivation to complete the iCBT, and it may be the increased completion of iCBT that caused the improvement, not the CBM-I itself. A design comparing iCBT alone with the combined treatment would be needed.

As there was no long-term follow-up comparison with the control group, it is not known whether the improvements would last. Also, those who agreed to take part already had a positive attitude to internet-based treatment, so it may not be effective for people who prefer face-to-face therapy.

In conclusion, Williams et al. (2013) is a well-controlled randomised controlled trial with valid, standardised measures and good ethics, which provides strong evidence that combining CBM-I with iCBT can reduce depression. However, high attrition, restrictive sampling and self-report outcome measures mean we should be cautious about generalising the findings to all patients with depression, and further research with long-term follow-up is needed before the combined treatment is widely used.



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(Total for Question 6 = 20 marks)

**TOTAL FOR SECTION A = 54 MARKS**



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## SECTION B

Answer questions from ONE option in this section.

Indicate which question you are answering by marking a cross ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

If you answer the questions in Option 1 put a cross in the box ☒.

### OPTION 1: CRIMINOLOGICAL PSYCHOLOGY

Answer ALL questions.

- 7 Benito carried out some research into the effects of anger management treatment with offenders. He recorded the number of aggressive acts offenders displayed. The offenders who had anger management treatment had a mean score of 3.4 aggressive acts. The offenders who did not have anger management treatment had a mean score of 7.9 aggressive acts.

(a) (i) State which statistical test Benito would use to analyse his data.

(1)

*Mann-Whitney U test*

(ii) State **three** reasons why Benito would use the statistical test you identified in (i).

(3)

1 *Benito was looking for a difference between the two groups of offenders.*

2 *He used an independent groups design, as different offenders had or did not have anger management.*

3 *The data (number of aggressive acts) is treated as at least ordinal level data.*

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(b) Benito used a random sample.

Describe how he would have selected his sample.

(2)

*Benito would give every offender in the target population, for example all offenders in the prison, a number and put all of their names in a hat (or use a random number generator).*

*He would then pick names out of the hat until he had the correct number of offenders, so every offender had an equal chance of being selected.*

**(Total for Question 7 = 6 marks)**



8 There are many biological explanations for crime and anti-social behaviour.

(a) Describe XYY syndrome as an explanation of crime and anti-social behaviour.

(4)

XYY syndrome is a chromosomal abnormality in which around 1 in 1000 males are born with an extra Y chromosome, so they have 47 chromosomes instead of 46.

This leads to the males being slightly taller than their siblings and having slightly lower intelligence than their siblings.

XYY can also lead to males being more impulsive and having behavioural problems, and some XYY males are more physically active. All of these can lead to crime and anti-social behaviour.

Jacobs et al. (1965) found a higher rate of XYY males in a secure hospital than in the general population, supporting the explanation.

(b) Another explanation of crime and anti-social behaviour is the influence of personality.

Explain **one** strength of personality as a factor that influences crime and anti-social behaviour.

(2)

A strength of Eysenck's personality theory is that it has research support. Boduszek et al. (2013) found higher levels of extraversion among inmates with high levels of recidivism, which supports Eysenck's claim that high extraversion is associated with criminal behaviour, showing the theory has validity.

(Total for Question 8 = 6 marks)



- 9 There are various treatments for offenders using a variety of psychological approaches, including the biological approach.

Evaluate **one** biological treatment for offenders.

(8)

One biological treatment for offenders is changing their diet. This assumes that minerals, vitamins and fatty acids such as omega-3 affect brain functioning and aggression, so if any of these are at low levels, aggression and anti-social behaviour will increase. Before the offender's diet is changed, their dietary intake is analysed to see which nutrients they are low in. Supplements such as multivitamins, minerals and omega-3 fatty acids are then added to the offender's diet, or their meals are changed to reduce sugar and processed food.

There is research support for dietary treatment. Gesch et al. (2002) gave young adult offenders in a UK prison either nutritional supplements or a placebo in a double-blind randomised controlled trial. Disciplinary incidents dropped by about 35% in the supplement group, with little change in the placebo group. As neither the offenders nor the researchers knew who had the real supplements, demand characteristics and experimenter bias are unlikely to explain the results.

Zaalberg et al. (2010) replicated this in the Netherlands, finding that adding vitamins, minerals and omega-3 to young offenders' diets decreased violent incidents by 34%, whilst they increased in the placebo group. This replication increases the reliability of the findings.

A strength of dietary treatment is that it is cheap, easy to give in prisons and has few side effects compared with drug treatments, and it is ethical as it improves the offenders' health.

However, diet does not address the cognitive or social causes of offending, such as faulty thinking or learned aggression, so it may need to be combined with psychological treatments such as anger management. The studies also measured behaviour inside



prison, so it is not known if the effect lasts once offenders are released and stop taking the supplements, and individual differences mean it may not work for every offender.

In conclusion, changing diet does seem to have a positive effect on aggression and is a relatively cheap way of treating offenders, but it is best used alongside other treatments.

(Total for Question 9 = 8 marks)



- 10 You will have learnt about a key question from criminological psychology that is relevant to today's society.

Assess the key question from criminological psychology.

(16)

*My key question is: is eyewitness testimony reliable enough to be trusted in court?*

*Eyewitness testimony (EWT) is the information given to the police or in court by a witness about what they recall of a crime, including descriptions and identification of the suspect. Juries tend to rely heavily on EWT when coming to a verdict, especially when the forensic evidence is hard to follow, and if there is no forensic evidence, the testimony of the witness becomes even more important. However, there is concern that witnesses are not always accurate, and if they are not, the wrong person could be convicted. This is relevant to today's society because mistaken eyewitness identification has been a factor in many wrongful convictions later overturned by DNA evidence.*

*Memory is reconstructive. Bartlett (1932) found that participants who recalled a story from another culture, The War of the Ghosts, made it shorter and changed unfamiliar objects to more familiar ones to fit their schemas. This suggests that a witness may fill gaps in their memory of a crime with what they expect to happen, rather than what actually happened.*

*Leading questions can also distort recall. Loftus and Palmer (1974) showed participants films of car accidents and found that changing the verb in the question, for example 'smashed' instead of 'hit', changed estimates of the speed of the car, and participants in the 'smashed' condition were more likely to report seeing broken glass a week later when there was none. So if the police use leading questions in interviews, these can influence the answers that witnesses give. Similarly, if witnesses are exposed to other information before a trial, such as news reports or talking to other witnesses, they may reconstruct their memory of the event and become inaccurate.*

*Other factors at the time of the crime matter. If a weapon such as a gun is used,*



witnesses may focus on the weapon, so they are less accurate in identifying the suspect (weapon focus). Witnesses are also more accurate at identifying suspects of their own race than of a different race (the own-race bias). Valentine and Mesout (2009) found that visitors to the London Dungeon who had higher anxiety were less accurate in their description and less likely to correctly identify a person they had met, suggesting that the stress of a real crime reduces accuracy.

However, a weakness of the evidence against EWT is that much of it comes from laboratory studies. Loftus and Palmer's participants watched a film with no consequences, so real witnesses, who know that their testimony matters, may be more careful and accurate. The study lacks ecological validity. Yuille and Cutshall (1986) interviewed real witnesses to a gun shooting in Canada months later and found their recall was very accurate, and those who reported the highest levels of arousal were the most accurate. They were also not misled by leading questions, which contradicts Loftus and Palmer and suggests that EWT for real crimes may be more reliable than laboratory studies suggest.

Yuille and Cutshall's study was a field study with only 13 witnesses to one event, so it may not generalise, and they could not control what the witnesses had discussed or read about the shooting in the months before interview. Valentine and Mesout's study had more realism, but the London Dungeon is still not a real crime, so the anxiety of a real victim may be higher.

Psychology has also helped to improve EWT. The cognitive interview (Fisher and Geiselman), which uses techniques such as context reinstatement and reporting everything, increases correct recall without increasing errors, and avoiding leading questions and using fair line-ups reduces the risk of mistaken identification.

In conclusion, EWT can be unreliable because memory is reconstructive and can be distorted by leading questions, post-event information, weapon focus and own-race bias.



However, research on real witnesses shows it can be accurate, especially for central details of real crimes. Juries should not ignore eyewitness testimony, but they should not focus on it at the expense of other evidence, and the police should use methods such as the cognitive interview to make it as reliable as possible.



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(Total for Question 10 = 16 marks)

**TOTAL FOR SECTION B OPTION 1 = 36 MARKS**



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**OPTION 2 BEGINS ON PAGE 32.**



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## OPTION 2: CHILD PSYCHOLOGY

If you answer the questions in Option 2 put a cross in the box ☒ .

Answer ALL questions.

- 11 Benito carried out some research into the effects of day care on children's behaviour. He recorded the number of aggressive acts children displayed. The children who attended full-time day care had a mean score of 3.4 aggressive acts. The children who did not attend full-time day care had a mean score of 7.9 aggressive acts.

(a) (i) State which statistical test Benito would use to analyse his data.

(1)

*Mann-Whitney U test*

(ii) State **three** reasons why Benito would use the statistical test you identified in (i).

(3)

1 *Benito was looking for a difference between the two groups of children.*

2 *He used an independent groups design, as different children did or did not attend full-time day care.*

3 *The data (number of aggressive acts) is treated as at least ordinal level data.*

(b) Benito used a random sample.

Describe how he would have selected his sample.

(2)

*Benito would give every child in the target population, for example all children in the local nurseries and families in the area, a number and put their names in a hat (or use a random number generator).*

*He would then pick names out of the hat until he had the correct number of children, so every child had an equal chance of being selected.*

(Total for Question 11 = 6 marks)

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12 Charlie has just received a diagnosis of autism.

(a) Describe the features of autism.

(4)

Autism is a developmental disorder, usually diagnosed in early childhood, and around 75% of people with autism are male.

Autism is on a spectrum (autism spectrum disorder), from Asperger's syndrome, which is milder, at the low end to severe autism at the high end.

People with autism have difficulty forming relationships with other people due to problems with social communication, such as understanding facial expressions and making eye contact, and they show restricted, repetitive behaviours and interests.

Around 10% of people with autism have a special ability (savant skill), such as playing a musical instrument.

(b) There are several explanations for autism. One is the biological explanation.

Explain **one** weakness of **one** biological explanation of autism.

(2)

A weakness of the genetic explanation is that concordance rates for MZ twins are not 100% (for example Bailey et al., 1995), so genes cannot be the only cause. Theory of mind offers an alternative explanation, that autism is caused by an inability to see the world from others' perspectives, throwing doubt on the genetic explanation.

(Total for Question 12 = 6 marks)



**13** There has been a lot of research carried out on the effects of privation.

Evaluate research into privation.

(8)

Privation is when a child never forms an attachment to a caregiver. Curtiss (1977) carried out a case study of Genie, who had been isolated and tied to a chair by her father until she was found aged 13. Despite years of care, her language development did not progress beyond that of a toddler, suggesting the effects of privation may be irreversible. Koluchova (1972) studied Czech twin boys who were locked in a cellar and beaten until they were 7. After being adopted by two loving sisters, by age 14 they had an average IQ and by age 20 they had jobs and secure relationships, suggesting privation can be reversible. Freud and Dann (1951) found that six children who had survived a concentration camp formed attachments to each other and later to staff at the clinic where they were rehabilitated, and all but one seemed to develop normal adult relationships. Hodges and Tizard (1989) found that children raised in institutional care and then adopted formed attachments to their adoptive parents but had trouble forming relationships outside the family.

However, in the case of Genie, it may not be the privation that stopped her making a full recovery in language. She may have had learning difficulties from birth, as suggested by abnormal sleep spindles, so it is hard to separate the effects of privation from a pre-existing condition.

It can be argued that the Czech twins were not a case of privation at all, as they were attached to each other, so it may be a case of deprivation, which explains their recovery. Freud and Dann's study was a case study of unique children at a unique point in time, so the results may not apply to other children who have suffered privation.

The results of Hodges and Tizard's study may not be true today, as at the time the institutions had a high staff turnover and close relationships were discouraged, whereas now we know how important close relationships are for children in care. Their study also



had high attrition. Rutter et al.'s (1998) study of Romanian orphans, a larger longitudinal study, found that children adopted before 6 months recovered well, which suggests timing matters.

In conclusion, research suggests that privation can be reversed if good-quality care is given early, but the research is mostly case studies, so it is hard to generalise.

(Total for Question 13 = 8 marks)



14 You will have learnt about a key question from child psychology that is relevant to today's society.

Assess the key question from child psychology.

(16)

My key question is: what issues should parents take into account when deciding on day care for their child? This is relevant to today's society because many parents need or want to go back to work after the birth of a child, so they need to place their child in day care. Day care can consist of other family members, such as grandparents, looking after the child, sending the child to a childminder, or sending them to a nursery. Being looked after by family members has the advantage of the child knowing who is looking after them and getting more one-to-one care. Childminders and nursery staff have to be qualified and are inspected by Ofsted, unlike family members. However, parents may worry about the quality of care and whether they are doing the best for their child, especially as Bowlby's theory suggests that separation from the mother in early childhood could damage attachment.

Parents need to consider the quality of the day care. They should check the staff to child ratio, as the more staff there are to fewer children, the better the care. They should also make sure the staff are highly qualified, that there is a low staff turnover and that staff interact with the children in a warm and positive manner. Key workers in a nursery can provide a temporary attachment figure for the child when they are away from their primary caregiver, so a nursery that uses a key worker system and keeps the same key worker is likely to be better.

Research supports the importance of quality. Andersson (1992) found that Swedish children who went to high-quality day care before the age of one were more socially and cognitively advanced at age 8 than those cared for at home. The EPPE project (Sylva et al., 2004) also found that children in high-quality pre-school benefited cognitively and socially, especially those from disadvantaged backgrounds. This suggests



that parents should not see day care as second best if they choose a high-quality setting.

Parents also need to consider the age of their child and the number of hours in day care, as children in full-time day care may experience negative effects. Belsky and Rovine (1988) found that children who were put into day care for more than 20 hours a week before the age of one were more likely to have an insecure-avoidant attachment with their mother, and those in care for over 35 hours a week were also more likely to be insecurely attached to their fathers. The NICHD study found that more time in day care was linked to behavioural problems such as aggression, especially if the day care was of low quality.

However, Belsky and Rovine's study has been criticised for using the Strange Situation, as children in day care are used to being left by their parents, so their calm behaviour on separation may be seen as avoidant when it actually shows independence. This means the Strange Situation may not accurately reflect their attachment type. Also, the NICHD findings are correlational, so day care may not cause aggression; family factors such as parental sensitivity were found to be stronger predictors of outcomes than day care.

Individual differences also matter. Shy or temperamentally sensitive children may find day care more stressful, so parents should consider their own child's needs rather than general findings.

In conclusion, there are several factors that parents should take into account when deciding on day care, such as the quality of care, staff ratios and qualifications, the age of the child and the number of hours. Research shows that high-quality day care can benefit children socially and cognitively, while long hours in low-quality care at a very young age may have negative effects. If parents research day care carefully, it can benefit the child, so they should not dismiss day care as something that is second best for their child.



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(Total for Question 14 = 16 marks)

**TOTAL FOR SECTION B OPTION 2 = 36 MARKS**



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### OPTION 3: HEALTH PSYCHOLOGY

If you answer the questions in Option 3 put a cross in the box ☒ .

Answer ALL questions.

- 15 Benito carried out some research into the effects of an advertising campaign about healthy living. He recorded the number of times people exercised each week. The people who had viewed the campaign had a mean score of 7.9 exercise sessions. The people who had not viewed the campaign had a mean score of 3.4 exercise sessions.

(a) (i) State which statistical test Benito would use to analyse his data.

(1)

*Mann-Whitney U test*

(ii) State **three** reasons why Benito would use the statistical test you identified in (i).

(3)

1 *Benito was looking for a difference between the two groups of people.*

2 *He used an independent groups design, as different people had or had not viewed the campaign.*

3 *The data (number of exercise sessions) is treated as at least ordinal level data.*

(b) Benito used a random sample.

Describe how he would have selected his sample.

(2)

*Benito would give every person in the target population, for example everyone on the electoral register for the area, a number and put all of their names in a hat (or use a random number generator).*

*He would then pick names out of the hat until he had the correct number of participants, so every person had an equal chance of being selected.*

(Total for Question 15 = 6 marks)



16 Ben is addicted to heroin. His parents want to find out about the causes of heroin addiction.

(a) Describe **one** biological explanation for heroin addiction.

(4)

*Heroin affects neurotransmitters in the brain, as it mimics endorphins (the body's natural opioids) by binding to opioid receptors. This causes the release of dopamine in the reward pathway, giving Ben feelings of pleasure and euphoria.*

*With repeated use, the brain readjusts the levels of neurotransmitters it naturally produces and reduces its own production of endorphins.*

*When the brain does not receive any heroin, it has reduced levels of these neurotransmitters, leading to withdrawal symptoms such as pain, sweating and anxiety, so Ben takes more heroin to avoid them.*

*It also leads to tolerance, so Ben has to take more heroin to get the initial effects.*

(b) Explain **one** weakness of **one** biological explanation for heroin addiction.

(2)

*The neurotransmitter explanation does not explain why someone such as Ben starts to take heroin in the first place, as it only looks at the effects on neurotransmitters once the drug has been taken, so social factors such as peer pressure must also be considered.*

(Total for Question 16 = 6 marks)



17 There are several treatments for heroin addiction.

Evaluate **one** treatment for heroin addiction.

(8)

One treatment for heroin addiction is methadone, which is a synthetic opiate agonist. It acts on the same opioid receptors as heroin but more slowly and for longer, so heroin addicts take it once a day and it stops the withdrawal symptoms and cravings for heroin without giving the same high. It is usually taken in liquid form at the pharmacy at first, under supervision, so that it is not sold or misused. Once the addict has stabilised on methadone, they may be trusted to take it home. The dose can then be gradually reduced (a maintenance or detoxification programme).

There is research support for methadone. Hedrich et al. (2012) reviewed studies of opioid substitution treatment in prisons and found that prisoners who started a methadone programme in prison and had community support when released were less likely to use heroin and more likely to remain drug free after release. This suggests methadone is effective, particularly when combined with support.

A strength of methadone is that it is taken orally, so it avoids the health hazards, such as hepatitis C and HIV, that come from sharing dirty needles. Because addicts no longer need to fund their heroin use, it can also reduce crime, and it allows them to live a more stable life, holding down a job and relationships.

However, addicts may become dependent on methadone, as it is itself an opiate, so they may just replace one addiction with another, and some people stay on methadone for many years. Methadone also only treats the physical addiction; it does not address the psychological or social reasons that someone started to take heroin, so relapse is likely without psychological therapy such as CBT. There is also a risk of overdose if it is combined with other drugs, which is why supervised consumption is used.

In conclusion, methadone has many advantages when treating heroin addicts, as it reduces harm and helps addicts to stabilise their lives, but it must be carefully



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monitored and combined with psychological support, otherwise addicts will stay on it long term, which will cost the NHS a lot of money.

(Total for Question 17 = 8 marks)



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**18** You will have learnt about a key question from health psychology that is relevant to today's society.

Assess the key question from health psychology.

(16)

My key question is: how can we encourage people to stop smoking? This is relevant to today's society because smoking is still a leading cause of preventable death and costs the NHS a great deal. Before health psychologists can help someone stop smoking, they have to know the reasons why someone started smoking. It could be because they saw family members or friends smoke and imitated them (social learning theory). Smokers know the health dangers of smoking but ignore them and carry on, focusing on the pleasure of smoking, so health psychologists need to look at how to reinforce the dangers of smoking. There are also the issues of physical addiction to nicotine and habit, which need to be addressed if the cycle is to be broken.

One way is through health campaigns. The Hovland-Yale model of persuasion states that the source, the message and the audience all affect whether persuasion works. It suggests that for an intelligent audience, presenting both sides of the argument and coming to a solid conclusion is more effective than presenting one side. So anti-smoking campaigns should acknowledge the pleasures smokers feel as well as the negatives of smoking and then come to a clear conclusion, rather than just highlighting the negatives. Pengpid et al. (2013) found that when people were aware of the risks of a substance, they were as likely to reduce their use as people who had brief intervention treatment, which supports the idea that information about risks can change behaviour. The elaboration likelihood model (Petty and Cacioppo, 1986) states that people can be persuaded through a central route, where they think carefully about the arguments, or a peripheral route, based on cues such as celebrities. Smokers must be motivated to process the message through the central route for lasting change, so health psychologists should offer motivation, such as entry into a prize draw for every day or week without a



cigarette. However, the central route does not cause a quick change in attitudes, so it does not cause a quick change in behaviour, and the cost of incentives may limit its effectiveness in stop smoking campaigns.

Fear arousal is also used, as graphic pictures of diseased lungs and mouths have been put on cigarette packs in the hope that smokers will notice them and be motivated to stop. Hammond et al. (2003) found that Canadian smokers who read and thought about graphic warning labels were more likely to try to quit or cut down, suggesting that graphic pictures are more effective than written warnings. However, smokers may ignore the pictures or stop noticing them as they become familiar, reducing their effectiveness, and Janis and Feshbach (1953) found that high fear messages can be less effective than low fear messages, as people may avoid thinking about a message that makes them too anxious.

Treatments for the physical addiction, such as nicotine replacement therapy (patches and gum), reduce withdrawal symptoms and cravings, and can be combined with psychological support. If treatment is to be effective, it is important that the smoker wants to change their behaviour and is ready to stop, otherwise they are more likely to start again when they experience difficulties such as cravings or stress.

In conclusion, health psychology can be used to encourage people to stop smoking through two-sided persuasive campaigns, motivation, graphic warnings and treatment of addiction. However, no single method works for everyone, so it needs to be a holistic approach which deals with the causes of starting smoking, the physical addiction and the psychological addiction, otherwise it is not as likely to be effective.



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(Total for Question 18 = 16 marks)

**TOTAL FOR SECTION B OPTION 3 = 36 MARKS**

**TOTAL FOR PAPER = 90 MARKS**



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