

Please check the examination details below before entering your candidate information

|                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Candidate surname<br><i>StemUp Model Solution</i>                                  |  | Other names                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Pearson Edexcel</b><br><b>Level 3 GCE</b>                                       |  | Centre Number<br><div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> | Candidate Number<br><div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></div> |
| Time 2 hours                                                                       |  | Paper reference                                                                                                                                                                                                                                                                                                                                                                                              | <b>9PS0/02</b>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Psychology</b><br><b>Advanced</b><br><b>PAPER 2: Applications of psychology</b> |  |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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 statistical 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.
- Good luck with your examination.

Turn over ►



## FORMULAE AND STATISTICAL 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**

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

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

**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 (a) Describe how the ICD is used as a classification system for mental health.

(4)

The ICD (International Classification of Diseases), published by the World Health Organisation, is a classification system that includes all diseases, both physical and mental, and is used by clinicians to diagnose service users.

If a service user presents with a possible mental health disorder, the clinician uses the section that focuses on mental and behavioural disorders (Chapter 5 in ICD-10).

For each mental health disorder the ICD gives the clinician the main features and the symptoms that must be present, and for how long, in order to make a diagnosis. The clinician matches the service user's symptoms to these criteria, for example through a clinical interview.

For example, ICD-10 states that paranoid schizophrenia is dominated by relatively stable, often paranoid delusions, usually accompanied by hallucinations, especially auditory ones, and the symptoms should be present for at least one month.

The diagnosis is given a code (e.g. F20 for schizophrenia) so that treatment can be planned and data recorded.

- (b) Explain **one** strength of using the ICD as a classification system for mental health.

(2)

A strength is that the ICD gives reliable diagnoses. Jakobsen et al. (2005) found that there was good agreement in the diagnosis of schizophrenia between ICD-10 and other classification systems, showing that ICD-10 is reliable as it gives consistent diagnoses with other classification systems, so service users are likely to be given the same diagnosis whichever clinician sees them.

(Total for Question 1 = 6 marks)



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- 2 Motsi carried out an investigation to see if culture had an influence on the treatments people accessed for their mental health disorders.

She studied people in the UK and people in Japan who had a mental health disorder. She aimed to see if people from the UK were more likely to use a psychological treatment compared to people from Japan.

Motsi used a volunteer sampling technique for her investigation.

- (a) Describe how Motsi may have gathered her volunteer sample.

(2)

*Motsi could post an advertisement online, or in clinics and mental health charities, in both the UK and Japan, asking people with a mental health disorder to take part in her study on treatments for mental health disorders.*

*She could then use the first 25 people from each country who responded to her advertisement and ask them what type of treatment they used.*

- (b) Explain **one** reason why a random sample of participants may be better than a volunteer sample of participants for Motsi's investigation.

(2)

*A random sample means that everyone in the UK and Japan who has a mental health disorder (the target population) has an equal chance of being chosen.*

*So Motsi's sample should be more representative, because a volunteer sample may consist of people who are more motivated to access treatments, such as psychological therapy, and therefore are not typical.*



- (c) Motsi used an unstructured interview to ask her participants about any treatment they were receiving for their mental health disorder.

Explain **one** weakness of Motsi using an unstructured interview for her investigation.

(2)

*In an unstructured interview Motsi may ask each participant with a mental health disorder different questions depending on their answers about the treatment they have received.*

*This may make it difficult for Motsi to analyse and compare her data to come to a conclusion about whether people in the UK use psychological treatments more than people in Japan.*

**(Total for Question 2 = 6 marks)**



- 3 Rodney carried out an investigation to see whether two different mental health disorders influenced the ability to complete domestic tasks, such as being able to cook.

The ability to complete domestic tasks was measured using a questionnaire, which was scored from 0 (very poor at completing domestic tasks) to 32 (excellent at completing domestic tasks).

- (a) State a fully operationalised non-directional (two-tailed) alternate hypothesis for Rodney's investigation.

(2)

*There will be a difference in the ability to complete domestic tasks, as measured by the questionnaire score out of 32 (0 = very poor, 32 = excellent), between participants with one mental health disorder and participants with the other mental health disorder.*



The results for the participants who had a mental health disorder are shown in **Table 1**.

| Participant | Domestic skills score |
|-------------|-----------------------|
| A           | 29                    |
| B           | 12                    |
| C           | 25                    |
| D           | 18                    |
| E           | 20                    |

**Table 1**

- (b) Calculate the standard deviation for the participants who had one mental health disorder using the data in **Table 1**. Show your working and give your answer to **one** decimal place.

(4)

**SPACE FOR CALCULATIONS**

$$\text{Mean} = (29 + 12 + 25 + 18 + 20) \div 5 = 104 \div 5 = 20.8$$

| Score ( $x$ ) | $x - \text{mean}$ | $(x - \text{mean})^2$ |
|---------------|-------------------|-----------------------|
| 29            | 8.2               | 67.24                 |
| 12            | -8.8              | 77.44                 |
| 25            | 4.2               | 17.64                 |
| 18            | -2.8              | 7.84                  |
| 20            | -0.8              | 0.64                  |

$$\Sigma(x - \text{mean})^2 = 170.8$$

$$\Sigma(x - \text{mean})^2 \div (n - 1) = 170.8 \div 4 = 42.7$$

$$s = \sqrt{42.7} = 6.534... = 6.5 \text{ (to 1 d.p.)}$$

Standard deviation ..... 6.5

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



- 4 During your studies of clinical psychology, you will have carried out a practical investigation.

Evaluate your practical investigation for clinical psychology.

(8)

For our clinical practical we carried out a content analysis. We aimed to find out whether attitudes to mental health shown in the media had changed over the past five years. We found a current magazine article online about mental health and an online newspaper article about mental health that was published five years ago.

We created a coding scheme and used a tally chart to count words with positive meanings, such as "inspiring" and "brave", and words with negative meanings, such as "aggressive" and "dangerous". We each coded both articles separately and then compared our totals. We found that both the newspaper and the magazine article showed positive attitudes to mental health and there was no real difference between the modern and the older article.

A strength of our practical is that it was replicable. Both articles can still be found online and we used a clear coding scheme, so other people could carry out the same content analysis to see if they get similar results about attitudes to mental health.

When we cross-checked our results there was little difference in our totals of positive and negative words, so we had good inter-rater reliability. Content analysis also raises few ethical issues, as the articles were already in the public domain and no participants could be harmed.

However, both articles focused on well-known celebrities who had talked about their mental health, so our content analysis may not have met our aim of looking at attitudes to mental health in general, which reduces validity. We only used two articles, so the sample was small and may not be representative of all media. Also, over the past few years there has been much more focus on mental health, so if we had used an article from over fifteen years ago we might have found that attitudes had changed,



which reduces the credibility of our conclusion. Counting single words also ignores the context, as a word such as "struggle" could be used positively.

In conclusion, our content analysis was reliable and ethical, but its validity was limited by the small, celebrity-focused sample and short time span, so in future we should use more articles from a wider range of years and sources.

(Total for Question 4 = 8 marks)



- 5 Émile has been diagnosed with schizophrenia. She sees ghosts when she is in a room on her own, and thinks that the government is spying on her through her mobile phone. Émile has stopped going out with her friends, and people say that her voice is very dull with no expression of emotion.

In the past Émile has been resistant to some biological treatments because she has been worried that the psychiatrist is trying to control her thoughts. However, Émile's current psychiatrist feels that a biological treatment will be the most beneficial.

Discuss **one** biological treatment that Émile's psychiatrist could use with her.

You must make reference to the context in your answer.

(8)

One biological treatment Émile's psychiatrist could use is antipsychotic drugs. The first (typical) antipsychotics, such as chlorpromazine, work by blocking dopamine (D2) receptors in the brain, reducing the excess dopamine activity thought to cause positive symptoms. Émile sees ghosts when she is alone, which is a visual hallucination, and believes the government is spying on her through her phone, which is a delusion of persecution. As these are positive symptoms, a typical antipsychotic should reduce them.

However, typical antipsychotics are less effective for negative symptoms. Émile has stopped going out with her friends (avolition and social withdrawal) and her voice is dull with no expression (flat affect). Atypical antipsychotics, such as clozapine or risperidone, block both dopamine and serotonin receptors and reduce both positive and negative symptoms for many patients, so an atypical drug may be more beneficial for Émile, helping her feel like going out with her friends again. Atypicals also have fewer motor side effects, such as tardive dyskinesia, than typicals, which may make Émile more willing to continue taking them, although they can cause weight gain, and clozapine needs regular blood tests.

Antipsychotics are usually taken orally as a tablet or liquid, or can be injected if the person is unlikely to take their medication. As Émile has been resistant to biological treatments in the past, because she worries the psychiatrist is trying to control her



thoughts, her psychiatrist may arrange a long-acting depot injection every few weeks, so she does not have to remember or agree to take tablets each day. However, this raises ethical issues about informed consent, and forcing treatment could make Émile's paranoia worse, so the psychiatrist needs to explain clearly how the drug works to build trust.

Antipsychotics should start to work within a few weeks. If Émile still believes the government is spying on her, the psychiatrist may try another type of antipsychotic or a different dose to see if it is more effective. Drugs only manage the symptoms rather than cure the cause, so Émile may need to stay on medication long term, and combining drugs with therapy may give her the best outcome.



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(Total for Question 5 = 8 marks)



6 Assess **one** non-biological theory/explanation for schizophrenia.

(20)

One non-biological explanation for schizophrenia is the cognitive explanation, which states that the symptoms are caused by faulty information processing. According to the cognitive explanation, symptoms such as hallucinations are caused by sensory overload.

People with schizophrenia do not filter out irrelevant information coming in from the senses (a deficit in selective attention), so they are flooded with stimuli, creating cognitive overload that leads to confused and disorganised thinking.

Frith (1992) proposed that people with schizophrenia have a fault in central monitoring, so they cannot recognise their own thoughts as their own. Hallucinations can therefore be caused by thinking that their inner voice (inner speech) is an external voice telling them what to do. Hemsley (1993) suggested that there is a poor link between memory and perception, so stored schemas do not guide the interpretation of new information. This leads to disorganised thinking, as the person does not know what to expect from a situation, and to sensory overload.

The cognitive explanation also accepts that excess dopamine may cause early symptoms such as unusual experiences, but says the person with schizophrenia then tries to make sense of them. When a person tries to explain these experiences, they may develop delusions and further symptoms such as disorganised thinking. For example, a person may become paranoid if they ask other people to confirm a hallucination and the other people cannot, so they may conclude that others are lying to them or plotting against them. Delusions may also be caused by an inability to process social situations appropriately, such as misreading other people's intentions, leading to feelings of persecution.

There is research evidence supporting the cognitive explanation. McGuire et al. (1996) found that areas linked to monitoring inner speech, such as the temporal lobe, were



less active during hallucinations, suggesting that people with schizophrenia are less able to monitor their inner voice, as Frith's model states. Dickson et al. (2018) found that adolescents at risk of developing schizophrenia already had deficits in a variety of cognitive functions, suggesting that the cognitive deficits come before the disorder and may be a cause of it.

However, it could be that the sensory overload and cognitive deficits are a result of having schizophrenia, not a cause of it, as most research is correlational and is carried out on people who are already ill, which reduces the credibility of the explanation.

Brain scanning evidence also suggests a biological basis, as PET scans (e.g. Butler et al., 2012) have shown less activity in the frontal lobes of people with schizophrenia, so the problem in monitoring information from the senses may be caused by brain abnormalities rather than faulty thinking alone. Carlsson et al. (2002) found that neurotransmitters such as glutamate, as well as dopamine, are involved in symptoms such as hallucinations, so the cognitive explanation is not a full explanation of schizophrenia.

Sitskoorn et al. (2004) found that relatives of people with schizophrenia had similar cognitive deficits but did not develop schizophrenia themselves. This means that cognitive deficits alone are not enough to cause the disorder and other factors, such as genes or stress, must also be involved, which fits a diathesis-stress approach better.

A strength of the cognitive explanation is that it considers both nature, in the form of neurotransmitters such as dopamine, and nurture, in how the person interprets their experiences, so it is a more complete explanation than the biological explanation alone.

However, it ignores the impact of social factors such as social class, urban living and stressful life events on the development of schizophrenia, so it may not fully explain the disorder.

The cognitive explanation has practical applications, as it led to cognitive behavioural



therapy for psychosis (CBTp), which helps people to challenge and reality-test their beliefs about hallucinations and delusions. CBT has some effectiveness in reducing distress from positive symptoms, suggesting that cognition plays a role in schizophrenia. However, CBT is less effective for negative symptoms such as lack of emotional expression and avolition, suggesting that these symptoms may have another cause, such as biological factors.

In conclusion, the cognitive explanation is useful as it explains how positive symptoms such as hallucinations and delusions develop and are maintained, and it is supported by research such as McGuire et al. (1996). However, because it cannot establish cause and effect, it explains negative symptoms less well, and relatives with the same deficits do not develop the disorder, it is best seen as part of an interactionist explanation, where biological vulnerability and faulty cognitive processing combine to cause schizophrenia.



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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 in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

### OPTION 1: CRIMINOLOGICAL PSYCHOLOGY

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

Answer ALL questions.

7 You will have learned about one of the following contemporary studies in criminological psychology.

- Bradbury and Williams (2013)
- Valentine and Mesout (2009)
- Howells et al. (2005)

(a) State **two** findings of your chosen contemporary study.

(2)

Chosen study

*Valentine and Mesout (2009)*

1 *The state anxiety score was higher for females, with a mean of 52.8, compared to males, who had a mean of 45.3.*

2 *Participants who had high state anxiety were less likely to correctly identify the scary person from a nine photograph line up than those with low state anxiety.*

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(b) Explain **one** strength of your chosen contemporary study in terms of reliability.

(2)

*The procedure for the identification was standardised, so the presentation of the photographs did not affect the identification of the scary person, reducing an extraneous variable.*

*This is because the nine photographs were always presented in the same way, in one row of four pictures and another row of five pictures, so the study could be repeated to test the consistency of the results.*

(Total for Question 7 = 4 marks)

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8 Noah is investigating a new treatment for offenders.

He decided to conduct a case study on one offender from his local prison. Before Noah conducted his case study, he carried out a risk management.

- (a) Describe the risk management Noah would have had to carry out for his case study.

(3)

Noah should ensure that the new treatment will not have any foreseeable adverse effects on the offender in his case study, such as psychological distress, and that any risks are less than the potential benefits of the treatment.

Noah has to take measures to ensure that he is safe when working with the offender, for example by having prison officers nearby, an alarm and an escape route in case the offender becomes violent towards him.

Noah should have insurance in place to cover any potential harm that the new treatment may cause to the offender or to any other people involved, such as prison officers.

He should also follow the prison's own procedures and get ethical approval before starting.

- (b) Noah used a variety of research methods within his case study including an experiment comparing the behaviour of the offender before the new treatment and after the new treatment.

Identify the experimental/research design Noah used in the experiment.

(1)

Repeated measures design, as the same offender was tested before and after the new treatment.



(c) For his case study Noah gathered qualitative and quantitative data.

Explain **one** reason why qualitative data may be better than quantitative data when researching criminological psychology.

(2)

*Qualitative data gathers more detailed and in-depth information, such as the offender's reasons for offending, compared to quantitative data.*

*This is because qualitative data allows offenders to explain the underlying reasons for why they offend in their own words, rather than being restricted in their responses, so it can give more valid insight into criminal behaviour.*

(d) Explain **one** weakness of Noah's investigation into the new treatment for offenders.

(2)

*Noah's study may lack validity if he claims that the new treatment works for all criminal behaviour, as he only studied one offender from one local prison.*

*Therefore the new treatment may not work on offenders who have committed different crimes or have different personalities, so the results cannot be generalised to all offenders or all crimes.*

**(Total for Question 8 = 8 marks)**



- 9 Peter is 17 years old and has just been arrested for arguing in the street and refusing to go home. His family is well known to the police. Peter's mother has been arrested for being drunk in public and his older brother has been arrested for fighting.

Peter lives in an area that has a bad reputation, which means he finds it hard to get a job.

In a sporting accident, a few years ago, Peter banged his head and since then his family have noticed that he has become more aggressive.

Discuss how Peter's development may have affected his anti-social behaviour.

You must make reference to the context in your answer.

(8)

*Peter's anti-social behaviour may have developed through social learning. Social learning theory (Bandura, 1961) states that criminal behaviour can be learnt in childhood by observing role models, especially same-sex role models, and imitating their behaviour, particularly if it is seen to be rewarded (vicarious reinforcement). Peter's older brother has been arrested for fighting, so Peter may have observed his brother, who is likely to be a same-sex role model, being aggressive and copied this behaviour, such as arguing in the street. His mother being arrested for being drunk in public may also have shown him that breaking social rules is normal. Farrington et al. (2006) found that having a convicted family member was a strong predictor of offending, which supports this.*

*Peter's anti-social behaviour may also be due to the self-fulfilling prophecy, where people are given labels based on stereotypes, are treated according to that label, and come to behave in a way that fits it. Peter's family is well known to the police and he lives in an area with a bad reputation, so he may have been labelled as a troublemaker as a child by teachers and police. This label could have become part of his self-concept, and because the area's reputation makes it hard for him to get a job, he has fewer legitimate opportunities, making anti-social behaviour more likely.*

*However, biological development must also be considered. Peter is 17 years old and in adolescence, when testosterone levels rise. Testosterone is a hormone thought to increase aggression and dominance, which may explain why his arguing and refusal to*



go home have increased. In addition, Peter banged his head in a sporting accident, and since then his family have noticed he is more aggressive. Damage to the prefrontal cortex, which controls impulses and decision making, leads to an inability to delay gratification and control emotions. Raine et al. (1997) found reduced prefrontal activity in murderers, supporting this. The accident may have damaged Peter's prefrontal cortex, so he can no longer stop his anti-social impulses.

Overall, Peter's anti-social behaviour is probably caused by an interaction of factors: the brain injury and adolescent hormones may have made him more impulsive and aggressive, while the role models in his family and the labelling from living in a deprived area have given him the opportunity and expectation to behave anti-socially. As his brother shares his environment but we do not know if he had a head injury, it is difficult to separate the effects of nature and nurture.



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(Total for Question 9 = 8 marks)



- 10 Detective Inspector Leeming is in charge of leading an investigation into a major crime. As part of the investigation she and another police officer have to interview a suspect. The suspect is under 16 years of age.

Detective Inspector Leeming is upset by the details of the crime. The interview is going to take place in two weeks' time and will be recorded. There has been no video footage of the incident found as yet.

Ethical interview techniques are going to be used during the interview.

Evaluate ethical interview techniques as they will be used by Detective Inspector Leeming.

You must make reference to the context in your answer.

(16)

*Ethical interviewing in England and Wales follows the PEACE model, introduced in the 1990s after miscarriages of justice caused by false confessions from oppressive interviews. PEACE stands for Planning and preparation, Engage and explain, Account, Closure and Evaluate. The aim is to gather accurate and reliable information rather than to obtain a confession.*

*Planning needs to be carried out before the interview starts, including any special considerations for the interviewee. As the suspect is under 16 years old, Detective Inspector Leeming must make sure an appropriate adult, such as a parent or social worker, can be present, and that a solicitor is available. Part of planning is to ensure the correct equipment is available, so as the interview will be recorded, she needs working recording equipment. As the interview is in two weeks' time, she has time to plan her questions and review the evidence.*

*During the engage and explain stage, the interviewer should try to establish rapport with the interviewee and clearly explain the aims and objectives of the interview and the suspect's rights. Detective Inspector Leeming needs to check that the suspect has understood the purpose of the interview and may need to explain it in simpler terms because of his or her age. She is upset by the details of the crime, so she should try to hide her feelings from the suspect and remain calm and non-judgemental, so that*



rapport is not damaged. In the account stage the suspect gives their version of events using open questions, which is then clarified and challenged. False information should not be used to gain a confession, so as no video footage of the incident has been found, Detective Inspector Leeming must not say that there is recorded evidence of the crime. At closure, as there are two interviewers, the lead person should check the other officer has no further questions before summarising and ending the interview.

Afterwards the interview is evaluated.

A strength of ethical interviewing is that it is widely accepted, as by 2010 around 70% of police officers had been trained in ethical interview techniques, showing that police forces believe it is effective. Walsh and Milne (2008) found that the use of ethical interview techniques gained more information from people suspected of benefit fraud. Because ethical techniques discard methods such as intimidation and deception, they lead to fewer false confessions, which is especially important with a young, vulnerable suspect who may be more suggestible. This reduces miscarriages of justice and saves taxpayers money on appeals and retrials.

However, there are weaknesses. Ethical interviews take a long time to plan, so they may not be possible if an interview needs to be conducted quickly to gain information, although in this case Detective Inspector Leeming has two weeks to prepare. Milne (2010) found that the only effect of training in ethical interview techniques was that interviews were longer, so training may not improve the skills needed. Pounds (2019) found that empathy was not always used appropriately in police interviews, so rapport may be poor in practice, and Detective Inspector Leeming's emotional reaction to the crime may make it difficult for her to show genuine empathy. Interviews are also often not carried out as the model intends, which reduces its effectiveness.

In conclusion, ethical interviewing is a fair and effective approach for Detective Inspector Leeming, particularly with a suspect under 16, as the appropriate adult,



recording and ban on deception protect the suspect's rights and make any information more reliable. However, its effectiveness depends on the interviewers being well trained and managing their own emotions, so Detective Inspector Leeming should use the planning time to prepare carefully, and perhaps let her colleague lead if she feels too upset.



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(Total for Question 10 = 16 marks)

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



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## OPTION 2: CHILD PSYCHOLOGY

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

Answer ALL questions.

11 You will have learned about one of the following contemporary studies in child psychology.

- Cassibba et al (2013)
- Gagnon-Oosterwall et al. (2012)
- Li et al. (2013)

(a) State **two** findings of your chosen contemporary study.

(2)

Chosen study

*Cassibba et al. (2013)*

1 *53% of the Italian non-clinical children were classified as having a secure (type B) attachment.*

2 *The most common type of attachment for the clinical or at risk Italian children was an insecure avoidant (type A) attachment.*

(b) Explain **one** strength of your chosen contemporary study in terms of reliability.

(2)

*Cassibba et al. (2013) only used studies that had used the strange situation procedure in their meta-analysis.*

*Therefore each study used the same standardised method to measure attachment type, so the results are consistent and are not confounded by using different measures of attachment.*

(Total for Question 11 = 4 marks)

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**12** Noah is investigating the influence of day care on children.

He decided to conduct an observation on one child from his local nursery. Before Noah conducted his observation, he had to consider issues around the participation and protection of the child.

- (a) Describe the issues around the participation and protection of the child that Noah would have to consider for his observation.

(3)

*Noah should ensure that the child's parents have given fully informed consent and know exactly what behaviours he will be observing in the nursery, and the nursery staff should also agree to the observation.*

*The child should not become distressed by Noah's presence at the nursery, and if the child does get upset he must stop his observation, so that the child is protected from harm.*

*If the child's parents no longer want Noah to continue observing the child, they can withdraw the child from his investigation at any time, and the data should be kept confidential, with the child not named.*

*Noah should also have a DBS check before working with children.*

- (b) Noah carried out an experiment where he watched the behaviour of the child before they went to day care and then watched the behaviour of the same child after they had been in day care for two months.

Identify the experimental/research design Noah used in the experiment.

(1)

*Repeated measures design, as the same child was observed before and after two months in day care.*



(c) For his observation Noah gathered qualitative and quantitative data.

Explain **one** reason why qualitative data may be better than quantitative data when researching child psychology.

(2)

*Qualitative data gathers more detailed information, such as the changes in the child's behaviour, compared to quantitative data.*

*This is because qualitative data allows researchers to write extensive notes on the differences in the child's emotional behaviour and the context in which it occurs, rather than being restricted to counting behaviours, so it is more valid.*

(d) Explain **one** weakness of Noah's investigation into the influence of day care for children.

(2)

*Noah's study may lack validity, as he only studied the effects of day care on one child at one nursery.*

*Therefore the effects of day care may be different for children at a different type of day care, which may be of a different quality, or for children with different temperaments, so the findings cannot be generalised.*

(Total for Question 12 = 8 marks)



- 13** Peter is 6 years old. His teachers have noticed that he has problems with communicating and interacting with other children and finds it hard to engage in imaginative play.

Peter was cared for by his mother full time before he went to school, as his parents decided that this would be better for him. However, she found it hard work at times so sometimes left him to cry for a few minutes.

When he was 2 years old Peter had to go into hospital for a week. His mother visited as often as she could but could not stay with him all the time.

Discuss how Peter's development may have affected his behaviour.

You must make reference to the context in your answer.

(8)

*Peter's problems with communicating and interacting with other children and his difficulty with imaginative play are characteristic symptoms of autism. Autism is a developmental disorder that occurs more in boys than in girls (around four boys to every girl), and as Peter is a boy he is more at risk. Baron-Cohen et al. (1985) found that children with autism lacked a theory of mind, as they failed the Sally-Anne false belief task. Peter may be autistic, so he cannot interact successfully with other children at school because he cannot understand their point of view or intentions. Peter's behaviour may also be due to not attending day care. The EPPE study (Sylva et al., 2004) found that good quality pre-school or day care helped a child's social and cognitive development. Peter was cared for full time by his mother, so he may have had fewer chances to mix with other children, and his mother may not have provided the high quality activities that a nursery offers, which is why he finds it hard to interact with others and engage in imaginative play. However, home care by a sensitive parent can also be beneficial, so this may not be the cause. Ainsworth found that children who have a sensitively responsive mother are more likely to form a secure attachment. As Peter's mother found it hard work at times and sometimes left him to cry for a few minutes, she may not always have responded to him immediately, so he may not be securely attached. According to Bowlby, this could*



give him a negative internal working model of relationships, affecting how he relates to other children.

Deprivation is a short-term separation from an attachment figure. When Peter was 2 years old he was in hospital for a week, and his mother could not stay with him all the time. Robertson and Robertson's film of Laura, a two-year-old in hospital, showed children go through protest, despair and detachment, so Peter may have suffered deprivation, which may affect how he relates to people. However, his mother visited often, which would have reduced the effects, and autism has a strong genetic basis, so his problems are more likely to be due to autism than to his early care.



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(Total for Question 13 = 8 marks)



**14** Mrs Leeming is in charge of a local nursery that looks after children aged from 6 months old to 5 years old. During her work she has noticed that different children have different reactions to their mothers when they are picked up from nursery to go home.

She has noticed that some children are happy to see their mothers at the end of the day. Other children do not seem happy to see their mothers, carry on playing, and run away. Mrs Leeming has also noticed that the mothers interact with their children differently.

Evaluate Ainsworth's types of attachment in relation to the children at the nursery.

You must make reference to the context in your answer.

(16)

*Ainsworth used the strange situation procedure, in which a child aged about 12 to 18*

*months is observed in eight episodes involving separation from and reunion with the*

*mother and being left with a stranger, to classify attachment types. A securely*

*attached child (type B) uses the mother as a safe base to explore, is distressed when*

*left with a stranger and goes to the mother for comfort when she returns, being easily*

*soothed. Mothers of securely attached children respond sensitively to their child's needs.*

*The children Mrs Leeming sees who are happy to see their mothers at the end of the*

*day are likely to be securely attached, as they go to the mother for comfort on*

*reunion, and their mothers probably interact with them in a way that meets the child's*

*needs at that time.*

*An insecure avoidant (type A) child is not upset when left alone and is not bothered*

*when the mother returns, often ignoring her. Children who are anxious avoidant often*

*do not have their needs met by their caregiver, as the mother may be insensitive or*

*rejecting. At the nursery, avoidant children will not display any emotion when picked up*

*and carry on playing, as they are used to an unresponsive reaction from their mother.*

*Children who are anxious resistant (type C) tend to stay close to their mother rather*

*than explore their surroundings, get very upset when the mother leaves, but resist and*

*reject comfort from her when she returns. Their mothers tend to be inconsistent. The*

*children Mrs Leeming sees who seem unhappy to see their mothers and run away from*



them may be anxious resistant. Mrs Leeming has noticed that the mothers interact with their children differently, which fits Ainsworth's idea that maternal sensitivity determines the attachment type.

Ainsworth and Bell's (1970) strange situation study found that there were three types of attachment and that children in each type reacted differently to separation and reunion, with most children securely attached. The strange situation is a controlled, standardised procedure with high inter-rater reliability, so the attachment types can be reliably identified. Van IJzendoorn and Kroonenberg (1988) carried out a meta-analysis of 32 studies in eight countries and found that the three types of attachment were represented in a variety of cultures, including non-Western cultures, with secure attachment the most common, which supports the universality of Ainsworth's types. Knowing the attachment types also has relevance to society, as parents can be taught to respond in an appropriate way so that their child can become securely attached, so Mrs Leeming could support the mothers.

However, a fourth type, disorganised (type D), was identified after Ainsworth's work by Main and Solomon (1986), showing that her three types did not cover all children, so her classification lacks validity. Kagan's temperament hypothesis suggests that the behaviour shown by the child may be due to their innate temperament rather than their attachment, so some children at the nursery may run away simply because they are temperamentally more independent, rather than insecurely attached. Ainsworth's work ignored the influence of other people, such as fathers, carers and peers, so it may not show how the child is attached to other significant people, such as the nursery staff. Also, the children at the nursery are aged from 6 months to 5 years, but the strange situation was designed for children aged about 12 to 18 months, so reunion behaviour at the end of a nursery day is not the same as the strange situation, and older children's behaviour may reflect tiredness or wanting to keep playing.



In conclusion, Ainsworth's types of attachment are useful in helping Mrs Leeming understand why the children react differently to their mothers, and they are supported by cross-cultural research. However, she should be careful about labelling the children, as temperament, age, the type D category and relationships with other carers may also explain their behaviour.



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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 OPTION 3 put a cross in the box ☒.

Answer ALL questions.

15 You will have learned about one of the following contemporary studies in health psychology.

- Mundt et al.(2012)
- Dixit et al. (2012)
- Pengpid et al. (2012)

(a) State **two** findings of your chosen contemporary study.

(2)

Chosen study

*Pengpid et al. (2012)*

1 *Both the treatment (brief intervention) group and the control group had a significant reduction in heavy drinking scores over time.*

2 *Harmful alcohol use for the treatment group dropped from a mean of 43 to a mean of 5 at 6 months.*

(b) Explain **one** strength of your chosen contemporary study in terms of reliability.

(2)

*There was no selection bias in who had the treatment, improving the reliability of the results, as the process can be repeated with another sample.*

*This is because patients were randomly assigned to the control group or the treatment group using numbered sealed envelopes.*

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**16** Noah is investigating the influence of a new drug treatment for heroin addicts.

He decided to conduct an experiment on rats. Before Noah conducted his experiment, he had to consider the ethics of using rats to study drug treatments.

- (a) Describe the ethical issues that Noah would have had to consider when conducting his experiment.

(3)

*Noah should only use the smallest number of rats he needs to gather his data about the effects of the new drug treatment for heroin addiction, so that no more rats than necessary suffer (reduction).*

*Noah should ensure that if the new drug treatment has an adverse effect on the rats, such as severe withdrawal or illness, they are humanely killed if they cannot recover, and that pain and distress are kept to a minimum.*

*Noah would have to make sure that the housing, bedding and food for the rats are suitable when he is not giving them the new drug treatment, and he must hold a Home Office licence under the Animals (Scientific Procedures) Act 1986.*

- (b) Later, Noah carried out an experiment on the effects of the new drug treatment for human heroin addicts using one human heroin addict.

He compared the behaviour of the heroin addict before they had the new drug treatment and after they had the new drug treatment.

Identify the experimental/research design Noah used in the experiment.

(1)

*Repeated measures design, as the same heroin addict was tested before and after the new drug treatment.*



(c) For his experiment Noah gathered qualitative and quantitative data.

Explain **one** reason why qualitative data may be better than quantitative data when researching drug treatments.

(2)

*Qualitative data gathers more detailed information, such as the reasons for drug taking or how the treatment feels, compared to quantitative data.*

*This is because qualitative data allows drug addicts to explain the underlying reasons for why they take drugs in their own words, rather than being restricted in their responses, so it gives a more valid picture.*

(d) Explain **one** weakness of Noah's investigation using the human heroin addict.

(2)

*Noah's study may lack validity, as he only studied the effects of the new drug treatment on one heroin addict.*

*Therefore the effects of the new drug treatment may be different for heroin addicts at a different stage of addiction or for poly-drug users, so the results cannot be generalised to all heroin addicts.*

(Total for Question 16 = 8 marks)



- 17 Peter is 17 years old and has just been diagnosed with alcohol addiction. His mother is also addicted to alcohol. She drinks alcohol from the moment she gets up in the morning and throughout the rest of the day.

Peter started to drink alcohol at the age of 13 in order to fit in with his group of friends, who also drink alcohol.

When at parties Peter finds that alcohol makes him feel more confident and he finds it easier to talk to other people. He now wants to drink alcohol every time he goes to a party.

Discuss how Peter's development may have affected his addiction.

You must make reference to the context in your answer.

(8)

*Social learning theory (Bandura) states that children observe and imitate the behaviours of role models such as their parents, especially if they see the behaviour being rewarded. Peter's mother is addicted to alcohol and drinks from the moment she gets up and throughout the day, so throughout his childhood Peter saw his mother drinking. He may have identified with her and imitated this behaviour, learning that drinking is a normal part of everyday life, which has led to his addiction.*

*Social identity theory (Tajfel and Turner, 1979) says that when we identify with a group we take on its norms and values to boost our self-esteem. Peter started to drink at the age of 13 to fit in with his group of friends who also drink, so to identify with his in-group, Peter took on the norm of drinking alcohol. Adolescence is a time when peer influence is especially strong, which explains why he started drinking so young.*

*Operant conditioning states that behaviours that are reinforced are more likely to be repeated in order to receive the reinforcement again. Peter feels more confident and finds it easier to talk to people when he drinks at parties, so he is positively reinforced, and alcohol may also negatively reinforce his drinking by removing social anxiety. This has led to him wanting to drink every time he goes to a party. According to classical conditioning, anything associated with a drug can trigger a conditioned response, such as cravings or a compensatory response, so more of the drug is needed*



to achieve the same effect. Peter has associated parties with alcohol, so being at a party now triggers the urge to drink, and he may need to drink more to have the same effect.

However, Peter's addiction may not be purely learned. As his mother is also addicted, Peter may have inherited a genetic vulnerability to alcohol addiction, so it is difficult to separate nature from nurture. Mundt et al. (2012) also found that how often parents drank was not significantly associated with adolescent drinking, whereas friends' drinking was, suggesting that his peer group has had a greater effect on his development than his mother.



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(Total for Question 17 = 8 marks)



**18** Mr Leeming works at a local doctor's surgery. One of his responsibilities is to reduce the number of people in the local area who are addicted to nicotine. In order to do this, he offers help and advice to those addicted to nicotine as well as treatments.

Mr Leeming has recently hired a therapist who is qualified to administer aversion therapy, and he has decided to offer this to a small group of people who are addicted to nicotine to see if it is effective.

Evaluate aversion therapy in relation to the small group of nicotine addicts.

You must make reference to the context in your answer.

(16)

*Aversion therapy is based on classical conditioning and aims to pair nicotine (smoking) with an unpleasant response, so that the addict learns a new association and avoids smoking. One method is rapid smoking, where those addicted to nicotine are asked to smoke rapidly, inhaling a cigarette every few seconds (about every six seconds) for a period of time. Smoking rapidly causes a person to feel sick and dizzy (the unconditioned response). The addict associates feeling sick with inhaling the cigarette, and after several pairings the cigarette becomes a conditioned stimulus, so the addict feels sick when they see a cigarette (conditioned response) and avoids smoking. Alternatively, addicts may be given silver acetate, in gum or lozenges, which leaves an unpleasant metallic taste when a cigarette is smoked.*

*In Mr Leeming's surgery, the therapist would give the small group of patients a packet of cigarettes and ask them to smoke them rapidly, and the nicotine addicts will be made to carry on smoking even if they feel sick. After a few sessions with the therapist, the small group of nicotine addicts should feel sick when they see a cigarette. When Mr Leeming's patients associate cigarettes with feeling sick, they will avoid smoking so that they will not feel sick, reducing the number of people addicted to nicotine in the area.*

*There is some research support. Russell et al. (1976) found that using electric shocks as an aversive stimulus led to 65% of the smokers stopping smoking, suggesting aversion therapy can be effective. However, Danaher (1977) used rapid smoking to treat*



smokers and found that it was effective for some smokers, such as non-married couples, but it was not effective for everyone, so it may only work for some of Mr Leeming's group. As the therapist is using a small group, Mr Leeming will be able to monitor each patient, but the results may not generalise to all smokers at the surgery. A strength of aversion therapy is that it can be a quicker and cheaper treatment than other therapies, as it only takes a few sessions, so nicotine addicts may prefer it and the surgery can treat more people. It stops the person craving nicotine, so they can then access other therapies, such as CBT, to gain insight into the reasons for their addiction.

However, aversion therapy does not address the psychological reasons why the nicotine addiction occurred, such as stress or peer influence, so it may not work long term.

Nicotine addiction may return after therapy if the patient tries a cigarette and realises they no longer feel sick, as the conditioned response extinguishes when it is no longer paired with feeling sick. There are also ethical issues, as making patients feel sick is unpleasant and many may drop out of the group, and rapid smoking can be dangerous for people with heart or lung problems, so the therapist must screen Mr Leeming's patients medically and gain fully informed consent, reminding them that they have the right to withdraw.

In conclusion, aversion therapy may be a quick and inexpensive way for Mr Leeming's surgery to help a small group of nicotine addicts stop smoking in the short term, but because of the ethical issues, high drop-out and risk of relapse, it would be more effective if combined with other help, advice and treatments, such as nicotine replacement and psychological support, that address the reasons for smoking.



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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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