

# Psychology Research (PYC 3704)

## Feedback on previous examination papers (2011 – 2013)

PYC 3704 - May/June 2011 – Previous examination paper	
Question	Correct answers and explanations
1	Option 1 is the most correct (pg 4). Proposed (tentative), variables or constructs have not been proven yet. Option 2 - Hypothesis is an intelligent guess that may or may not be based on facts.
2	Option 2 is the most correct (pg 4). Theories are informed by facts which are tested based on the scientific body of knowledge we have about our topic or subject, in this case, acute stress disorder. Option 1 - Hypothesis is an intelligent guess that may or may not be based on facts. Option 3 – No constructs have been presented in this statement, but later in the following premises.
3	Option 3 is the most correct (pg 8). Dependent – effect – level of anxiety experienced (after psychotherapy). Independent – cause – whether or not psychotherapy is received.
4	Option 1 is the most correct (pg 60). Our focus will be mainly to prove whether psychotherapy improves the quality of lives of our participants. Although we do acknowledge the importance of anxiety proneness and the nature of stressor, these factors will not be important when we report our findings whether it was the psychotherapy which lowered or failed to decrease the level of anxiety. Thus, we cancel them out because we are mainly interested on the effects of the psychotherapy, and not external variables.
5	Option 3 is the most correct (pg 21, 24 – Q8). Latent – hidden.
6	Option 2 is the most correct (pg 1-2). Option 1 and 2 are partially true, we do not only collect and diagnose disorders; we also develop new knowledge by empirically testing theories.
7	Option 2 is the most correct (pg 1).
8	Option 3 is the most correct (pg 8). Dependent variable – motor performance. Independent variable – amount of alcohol consumed.
9	Option 2 is the most correct (pg 21, 24 – Q8).
10	Option 1 is the most correct (pg 8).
11	Option 1 is the most correct (pg 22, 24 – Q10). Option 2 – Constant values do not change (the scenario refers to degrees of arousal). Option 3 – Correlation coefficient needs two variables and one group. Compare with Q25.
12	Option 1 is the most correct (pg 23, 25 –Q18, 75). Option 2 and 3 are not correct because the author did not state in which direction the relationship will follow. Thus we will test for a two-tailed t-score.
13	Option 3 is the most correct (pg 63, 66 – Q5). Option 1 – 0, 99 Option 2 – 0, 00.
14	Option 2 is the most correct (pg 51-3). Normal distribution models how scores are distributed on a scale that is 0, 5 (50%) to the left, and 0, 5 (50 %) to the right, thus equal to 100%.
15	Option 2 is the most correct (pg 55).  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Joseph's history z-score</p> <math display="block">60 - 65 / 10 = -0,50</math> </div> <div style="text-align: center;"> <p>Josephs biology class</p> <math display="block">50 - 53 / 12 = -0,25</math> </div> </div> <p style="text-align: center;">-0,50 is closest to -00,1 – Joseph thus did better in his history test</p>
16	Option 3 is the most correct (pg 29).  7000 students passed from 100% to 50% (including the 300 got exactly 50%) = 10 000 – 7000 = 3000 failed  $3000 / 10\ 000 \times 100 = 0,3$
17	Option 1 is the most correct (pg 52).
18	Option 3 is the most correct (pg 61). Sample means is equal to population mean (all possible samples in the population).
19	Option 3 is the most correct (pg 29).
20	Option 1 is the most correct (pg 29).

21	Option 3 is the most correct (pg 29).  $1 / 3 = 0,33$
22	Option 3 is the most correct (pg 60-1).  Two important elements you need to note on the central limit theorem:  (a) "This theorem gives the sample distribution of the sample means for any population, irrespective of the shape, mean or standard deviation of the original population." (b) "The distribution of <b>sample means (equal to population mean) will become more normal as sample size (n) increases.</b> "
23	Option 3 is the most correct.  $p > 0,5 = > 50\%$
24	Option 1 is the most correct.  $450 - 150 = 300$  $300 / 450 = 0,666 = 0,67$
25	Option 1 is the most correct (pg 75).  Null hypothesis: $H_0 = 0$ Alternative hypothesis: $H_0 < 7$
26	Option 3 is the most correct (pg 75).  <ul style="list-style-type: none"> <li>• Directional <math>&lt; &gt;</math> (one-tailed)</li> <li>• Non-directional <math>\neq</math> (two-tailed)</li> </ul>
27	Option 3 is the most correct (pg 78, 82).
28	Option 1 is the most correct (pg 83).  <ul style="list-style-type: none"> <li>• Type 1 error – p-value smaller than chosen level of significance – thus do not reject alternative hypothesis (remember that we never accept the alternative because of possible error).</li> <li>• Type 2 error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).</li> </ul>
29	Option 1 is the most correct (pg 78, 82). We always are trying to disprove the null since null states the constant variable (no difference exists).
30	Option 2 is the most correct (pg 75).  <ul style="list-style-type: none"> <li>• Non-directional hypothesis (<math>\neq</math>) requires two-tailed statistical test</li> <li>• Directional hypothesis (<math>&lt; &gt;</math>) requires one-tailed statistical test</li> </ul>
31	Option 1 is the most correct (pg 84). We wrongly reject the null because due to the error involved in testing probabilities, there is a possibility that it might be true.
32	Option 1 is the most correct (pg 83).
33	Option 3 is the most correct (pg 78). Probabilities figures are based on chance factors, e.g. the possibility that you will win the next lotto draw is based on chance.
34	Option 1 is the most correct (pg 75).  Type one error – p-value is smaller than the chosen level of significance (do not reject alternative hypothesis). Thus, the sample result is under the alternative hypothesis.
35	Option 3 is the most correct (pg 18).

	<ul style="list-style-type: none"> <li>• Dependent variable (effect) – Attitude towards abortion (do I favor abortion or not)</li> <li>• Independent variable (cause) – Extroversion (characterized by sociability, unreserved and open to new ideas and experiences) (my level of extroversion will affect my attitude towards abortion).</li> </ul>
36	Option 3 is the most correct (pg 11, 124, 127 – Q2). Our target or research population will consist of women who completed the EPQ test, i.e. we only want to know how these women’s view differ and not concerned with the entire population. The women in our sample may not reflect the demographics of all women in the world.
37	Option 2 is the most correct (pg 19). The research hypothesis will give an indication of the direction of the alternative hypothesis.
38	Option 1 is the most correct (pg 85-6). “The ability of a statistical test to detect a significant relationship between variables when such a relationship does in fact exist is referred to as its power.” Power thus supports type-one error (rejection of the null hypothesis) since we did prove a difference does in fact exist. Remember that the null states a constant value implying there is no difference between your variables. Sampling errors and errors of measurement reduce our ability to claim (as reflected in the direction of the alternative hypothesis) that a relationship does exist.
39	Option 1 is the most correct (pg 116).
40	Option 2 is the most correct (pg 78). We use the test statistic when consulting Appendix D.
41	Option 2 is the most correct (pg 85). Type-two error – reject alternative hypothesis, p-value (0, 06) is larger than chosen level of significance (0, 05). Alpha gives exact probability of Type-two error.
42	Option 1 is the most correct (pg 85). Type-one error – reject null hypothesis, p-value (0, 04) is smaller than chosen level of significance (0, 05). P-value gives exact probability of Type-two error.
43	Option 1 is the most correct (pg 81). The null hypothesis (given variable) is assumed to be true since this is the value indicated by the parameter. The alternative hypothesis (measure we test using a sample) is indicated by the sample statistic.
44	Option 3 is the most correct (pg 85).  Type one error – p-value is smaller than the chosen level of significance (do not reject alternative hypothesis). Type-two error – reject alternative hypothesis - p-value (0, 090) is larger than chosen level of significance (0, 05).
45	Option 3 is the most correct (pg 101). Only one group is being sampled.
46	Option 1 is the most correct (pg 75).  Alternative predicts majority of 70 year olds are female (H1 = >).
47	Option 1 is the most correct.  Equal opportunity = $15 / 25 \times 0, 5$ = 0, 3  Bias = $15 \times 0, 3 / 25$ = 0, 18  <b>Please note that you will not be asked question on the Zp calculation.</b>
48	Option 1 is the most correct. Use Zp value to compare with the standard normal distribution table (Appendix D) small area (H1 = 0, 7 >).
49	Option 3 is the most correct (pg 61). Standard deviation of the population.
50	Option 2 is the most correct (pg 75).  Converting two-tailed p-value to one-tailed p-value: $0,345 / 2 = 0, 173$
51	Option 3 is the most correct (pg 11, 124, 127). Our target or research population will consist of depressed patients that could have undergone psychotherapy, i.e. we only want to know if these individual’s decreased



	after psychotherapy and not concerned with the entire population. The patients in our sample may not reflect the demographics of all patients in the world.																
52	Option 2 is the most correct (pg 83).  U1 (null hypothesis) U2 (alternative hypothesis)																
53	Option 2 is the most correct (pg 75, 83, 114).  Null always remain constant (no statistical difference).																
54	Option 1 is the most correct (pg 177). Appendix F.  One group was sampled and population standard deviation ( $\sigma$ ) was given.																
55	Option 3 is the most correct (pg 106). We already know there is going to be a statistical difference that favors the null (Type two error) since p-value is larger than chosen significant value.																
56	Option 1 is the most correct (pg 112).  Independent group (individuals are do not share similar characteristics).																
57	Option 1 is the most correct (pg 114).																
58	Option 3 is the most correct (pg 112).  Zc-statistic mainly gives you the value to be compared with p-value on your tables for both dependent and independent groups.																
59	Option 3 is the most correct (pg 112).  Option 1 (schoolchildren are similar across concerned demographics). Option 2 ((same individuals with the same characteristics tested before and after).																
60	Option 1 is the most correct. Consult Appendix D.																
61	Option 2 is the most correct (pg 130).  Ratio and interval scales (consult Appendix B).																
62	Option 2 is the most correct (pg 137).																
63	Option 3 is the most correct (pg 142). Teachers sample will include everybody (one sample) in his class. In this case, we will use chi-square test static.																
64	Option 1 is the most correct (pg 133).																
65	Option 1 is the most correct (pg 146).																
66	Option 2 is the most correct (pg 75).  <table border="1"><tr><td></td><td>X</td><td>Y</td><td><math>\Sigma</math></td></tr><tr><td>A</td><td>7</td><td>3</td><td>10</td></tr><tr><td>B</td><td>3</td><td>7</td><td>10</td></tr><tr><td><math>\Sigma</math></td><td>10</td><td>10</td><td>20</td></tr></table> $10 \times 10 / 20 = 5$		X	Y	$\Sigma$	A	7	3	10	B	3	7	10	$\Sigma$	10	10	20
	X	Y	$\Sigma$														
A	7	3	10														
B	3	7	10														
$\Sigma$	10	10	20														
67	Option 2 is the most correct (pg 132). $\pm 1, 00 / \pm 00, 1$ is equivalent to 100%, any value above is incorrect.																
68	Option 3 is the most correct (pg 142, 144). Two groups with more than one variable. Consult Appendix B for nominal scales.																
69	Option 2 is the most correct (pg 139).																
70	Option 1 is the most correct (pg 144).																

PYC 3704 - October/November 2011 – Previous examination paper	
Question	Correct answers and explanations
1	Option 3 is the most correct (pg 7).
2	Option 2 is the most correct (pg 21, 24 - Q8).
3	Option 2 is the most correct (pg 1).
4	Option 1 is the most correct (pg 9).  Dependent – effect – estimated size increase. Independent – cause – haziness (distant away from object).
5	Option 1 is the most correct (pg 8).
6	Option 3 is the most correct (pg 21, 24 - Q8). Observable behavior we can measure.
7	Option 2 is the most correct (pg 4, 18, 21, 24, Q4). We have not predicted the direction of this test.
8	Option 3 is the most correct (pg 8).
9	Option 1 is the most correct (pg 22, 24 – Q10).
10	Option 3 is the most correct (pg 19, 21, 24, Q8).
11	Option 3 is the most correct (pg 4, 18, 21, 24 – Q4).
12	Option 3 is the most correct (pg 19, 21, 24 –Q10).
13	Option 2 is the most correct.  $250 = 1$ $3000 \quad 12$
14	Option 1 is the most correct (pg 55). Normal distribution models how scores are distributed on a scale that is 0, 5 (50%) to the left, and 0, 5 (50 %) to the right, thus equal to 100%.
15	Option 2 is the most correct (pg 55).  Joseph's psychology z-score $45 - 35 / 10 = 1$
16	Option 3 is the most correct (pg 30).
17	Option 2 is the most correct (pg 55).  $English = \frac{15-12}{3} = \frac{3}{3} = 1$  $Geography = \frac{18-13}{5} = \frac{5}{5} = 1$  John thus did equally well in English and Geography.
18	Option 3 is the most correct (pg 61). Sample means is equal to population mean (all possible samples in the population).
19	Option 1 is the most correct.  $18 + 17 + 12 = 47$  $12 / 47 = 0, 255 = 0, 26$
20	Option 3 is the most correct (pg 31-2).
21	Option 1 is the most correct (pg 11-3).
22	Option 2 is the most correct (pg 52-3, 163).
23	Option 1 is the most correct.  $63 + 5 = 68$ $5 / 68 = 0, 073$

24	Option 3 is the most correct (pg 163).
25	Option 3 is the most correct (pg 78-9, 81-2).
26	Option 3 is the most correct (pg 75). <ul style="list-style-type: none"> <li>• Directional <math>&lt; &gt;</math> (one-tailed)</li> <li>• Non-directional <math>\neq</math> (two-tailed)</li> </ul>
27	Option 1 is the most correct (pg 82-3).
28	Option 3 is the most correct (pg 85). P-value will be larger than chosen level of significance. <ul style="list-style-type: none"> <li>• Type 1 error – p-value smaller than chosen level of significance – thus do not reject alternative hypothesis (remember that we never accept the alternative because of possible error).</li> <li>• Type 2 error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).</li> </ul>
29	Option 2 is the most correct (pg 75). Alternative hypothesis ( $H_1 >$ ). Directional hypothesis - One-tailed test.
30	Option 2 is the most correct (pg 101). One sample was tested.
31	Option 3 is the most correct (pg 82). We are not comparing two groups, thus, we not need a t-score. Plus, the population standard deviation was given ( $\sigma$ ). Consult Appendix F (pg 177).
32	Option 2 is the most correct (pg 75). Alternative hypothesis ( $H_1 <$ ). Directional hypothesis - One-tailed test.
33	Option 1 is the most correct (pg 96, 98 –Q2, 8). Type-one error – reject null hypothesis - p-value (0, 04) is smaller than chosen level of significance (0, 05). P-value gives exact probability of Type-one error. A probability is a calculated estimate, not a chosen figure by the researcher.
34	Option 3 is the most correct (pg 85).
35	Option 3 is the most correct (pg 94, 96, Q5).  $H_0 = 50$ $H_1 = < 50$  Alternative hypothesis is true, thus reject null and do not reject alternative (Type-one error).
36	Option 2 is the most correct (pg 85).
37	Option 1 is the most correct (pg 86). A larger sample reduces sample error.
38	Option 3 is the most correct (pg 75). Lisa is not sure in which direction the results will show. Compare Q25 in the May/June 2011 paper.
39	Option 2 is the most correct (pg 106). We already know they will differ statistically as well.
40	Option 2 is the most correct (pg 53). There probably is no difference.
41	Option 3 is the most correct (pg 75). Peter is not sure in which direction the results will show. Compare Q25 in the May/June 2011 paper.
42	Option 2 is the most correct (pg 82). One sample was tested. We are not comparing two groups, thus, we not need a t-score. Population standard deviation was also given (consult Appendix F – pg 177).
43	Option 3 is the most correct (pg 75).  Option 1 ( $H_1 >$ ) Option 2 ( $H_1 <$ ) Option 3 ( $H_1 \neq$ )
44	Option 1 is the most correct (pg 85).  Type one error – p-value is smaller than the chosen level of significance (reject null and the alternative hypothesis is probably true). Type-two error – p-value is larger than chosen level of significance (reject alternative hypothesis, the null hypothesis is probably true).

	A smaller chosen significant level mean will have more Type-two errors.																
45	Option 1 is the most correct (pg 101). Only one group is being sampled.																
46	Option 3 is the most correct (pg 101). Population standard deviation was not given (consult Appendix F).																
47	Option 2 is the most correct (105).																
48	Option 1 is the most correct (83). Consult Q 44.																
49	Option 2 is the most correct (pg 83). Consult Q 44.																
50	Option 2 is the most correct (pg 85). Convert one-tailed p-value to two-tailed p-value: $0,04 \times 2 = 0,08$ .																
51	Option 3 is the most correct (pg 141).  For example: <table border="1" data-bbox="258 566 911 719"> <thead> <tr> <th></th> <th>Divorced</th> <th>Not divorced</th> <th><math>\Sigma</math></th> </tr> </thead> <tbody> <tr> <td>First marriage</td> <td>7</td> <td>3</td> <td>10</td> </tr> <tr> <td>Second marriage</td> <td>3</td> <td>7</td> <td>10</td> </tr> <tr> <td><math>\Sigma</math></td> <td>10</td> <td>10</td> <td>20</td> </tr> </tbody> </table>		Divorced	Not divorced	$\Sigma$	First marriage	7	3	10	Second marriage	3	7	10	$\Sigma$	10	10	20
	Divorced	Not divorced	$\Sigma$														
First marriage	7	3	10														
Second marriage	3	7	10														
$\Sigma$	10	10	20														
52	Option 1 is the most correct (pg 75). $H_1 >$ .																
53	Option 2 is the most correct (pg 114).  Dependent group (same individuals with the same characteristics) tested before and after.																
54	Option 1 is the most correct (pg 75). $H_1 >$ .																
55	Option 2 is the most correct (pg 114). Two groups, namely a control group and a treatment group are being compared.																
56	Option 1 is the most correct (pg 112).  Null is always constant (no statistical difference).																
57	Option 3 is the most correct.  Males = $33 / 60 = 0,55$ . Females = $18 / 40 = 0,45$ .																
58	Option 3 is the most correct (pg 125, 127 –Q7).																
59	Option 2 is the most correct (pg 116).																
60	Option 1 is the most correct (116).																
61	Option 3 is the most correct (pg 132).																
62	Option 1 is the most correct (pg 142).																
63	Option 3 is the most correct (pg 133).																
64	Option 1 is the most correct (pg 142).																
65	Option 2 is the most correct (pg 133). X contains constant values.																
66	Option 1 is the most correct (pg 139).																
67	Option 3 is the most correct (pg 133).																
68	Option 3 is the most correct (pg 132). $\pm 1,00 / \pm 00,1$ is equivalent to 100%, any value above is incorrect.																
69	Option 2 is the most correct (pg 146).																
70	Option 3 is the most correct (pg 137, 146). Option 1 (chi-square).																

	PYC 3704 - May/June 2012 – Previous examination paper
Question	Correct answers and explanations
1	Option 2 is the most correct (pg 2). Option 3 (Operationalization).
2	Option 2 is the most correct (pg 7). Option 1 and 4 (Variables). Option 3 (Hypothesis).
3	Option 1 is the most correct (pg 4, 18, 21, 24 – Q4). Option 2 (Absolute - provisional certainty). Option 3 (Qualitative research). Option 4 (Constructs – should be variables).
4	Option 4 is the most correct (pg 21, 24 – Q8). Compare Q 1 above.
5	Option 3 is the most correct (pg 2). Empirical knowledge has undergone testing (experimentation).
6	Option 2 is the most correct (pg 4). Theory is based on the knowledge base we already have in a field of study, e.g. psychology.
7	Option 4 is the most correct (pg 19). It is a hypothesis for now because we are unsure of what will find.
8	Option 3 is the most correct (pg 8).
9	Option 2 is the most correct (pg 7). Constructs are hidden (theoretical), variables are visible (numerical).
10	Option 1 is the most correct (pg 11-3). Sample represents overall population.
11	Option 2 is the most correct (pg 11–3).
12	Option 4 is the most correct (pg 4, 18, 21, 24 –Q4). Hypothesis is an intelligent guess. Constructs are theoretical concepts.
13	Option 3 is the most correct.
14	Option 4 is the most correct.  $2 / 3 = 0,666 = 0,67$
15	Option 3 is the most correct (pg 31-2). There is a high certainty that it will fall at least 500 times.
16	Option 4 is the most correct.
17	Option 2 is the most correct (pg 55).  Obtaining exactly 50%: $300 / 10000 = 0,03$  Obtaining 50% or more: $6000 / 10000 = 0,60$
18	Option 2 is the most correct (pg 50-2, 81). Normal distribution acts as a visual representation showing the results of our measurements.
19	Option 3 is the most correct.  Y-axis shows $\sigma$ (pg 52)  X-axis shows z-scores (the number of standard deviations below and above the mean) (pg 55).
20	Option 3 is the most correct (pg 31-2).  $z - score = \frac{14-20}{8} = \frac{-6}{8} = -0,75$
21	Option 3 is the most correct (pg 60-1). Sample means (all possible means = population mean standard error).
22	Option 2 is the most correct (pg 64, 66 – Q10). We will never really know exactly know the number of people, cases or incident in a population, unless the population is clearly defined, e.g. number of departments at the University of South Africa.
23	Option 3 is the most correct (pg 55).  We calculate the z-score namely using the given mean and standard deviation (as extracted from the population) and compare these with statistical (mean and standard deviation provided by our sample) to determine whether a proposed relation or difference exists. Basically, we are determining whether what is claimed about the population is really true.
24	Option 1 is the most correct (pg 55-6).

	$\text{Subject A} = \frac{50-40}{5} = \frac{10}{5} = 2$ $\text{Subject B} = \frac{55-50}{5} = \frac{5}{5} = 1$ $\text{Subject C} = \frac{60-50}{10} = \frac{10}{10} = 1$ $\text{Subject D} = \frac{65-65}{5} = \frac{0}{5} = 0$ <p>Student X thus did well in Subject A.</p>
25	<p>Option 4 is the most correct.</p> <p><math>10 + 20 = 30\%</math></p>
26	<p>Option 3 is the most correct (pg 19, 75).</p> <p><math>H_0 = 80</math>  <math>H_1 = 80 &lt; \text{(cognitive decline will be slower)}</math></p>
27	Option 1 is the most correct (pg 75).
28	<p>Option 1 is the most correct (pg 94, 96).</p> <p>Mean of the sampling distribution of the mean (mean of all possible means) = population mean.</p>
29	Option 1 is the most correct (pg 61). Sample means (all possible means = population mean). Standard deviation of the population mean = standard error).
30	Option 4 is the most correct (pg 82). One sample was tested. Population standard deviation was given (consult Appendix F – pg 177).
31	Option 1 is the most correct (pg 82). Type-one error – reject null hypothesis - p-value is smaller than chosen level of significance.
32	Option 2 is the most correct (pg 96, 98 – Q2, 8). P-value gives exact probability of Type-one error. A probability is a calculated estimate, not a chosen figure by the researcher.
33	Option 1 is the most correct (pg 95, 97 – Q2,1). A statistical hypothesis reflects the condition in the population.
34	<p>Option 1 is the most correct (pg 94, 96 – Q1, 5).</p> <p>Null always reflects a constant value (no difference). We assume that it is true since it is derived from the population (that is when all people, cases or events have been tested). The alternative hypothesis is based on the figures/calculations obtained using a sample.</p>
35	<p>Option 3 is the most correct (pg 93).</p> <p>Type 1 error – p-value smaller than chosen level of significance – thus do not reject alternative hypothesis (remember that we never accept the alternative because of possible error).</p> <p>For example: p-value (0, 000) &lt; level of significance (0, 050)</p> <p>Type 2 error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).</p> <p>For example: p-value (0, 051) &gt; level of significance (0, 050)</p>
36	Option 4 is the most correct (pg 75).

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37	Option 2 is the most correct (pg 76). We assume that the null hypothesis is true since it is derived from the population (that is when all people, cases or events have been tested). The alternative hypothesis is based on the figures/calculations obtained using a sample (from which we obtain the p-value).
38	Option 1 is the most correct (pg 83).
39	Option 2 is the most correct (pg 85). Consult Q35 above.
40	Option 2 is the most correct (pg 81). Consult Q37 above.
41	Option 1 is the most correct (pg 84).
42	Option 1 is the most correct (pg 81). Consult Q37 above.
43	Option 2 is the most correct (pg 73). Consult Q37 above.  Type one error – p-value is smaller than the chosen level of significance (reject null and the alternative hypothesis is probably true).
44	Option 3 is the most correct (pg 78). Probabilities are based on possibilities, there is always a chance they might not be true. Chance and sampling error enter to influence the accuracy of our calculations.
45	Option 2 is the most correct (pg 85-6).
46	Option 4 is the most correct (pg 83). Chosen level of significance.
47	Option 2 is the most correct.  $S_x = 24 / \sqrt{64}$ $= 24 / 8 = 3.0$
48	Option 4 is the most correct (75).  Type one error – p-value (0, 04) is smaller than the chosen level of significance (0, 05).
49	Option 2 is the most correct (pg 77, 106).  Option 1 (Sample mean confirms null hypothesis – do not need to do the test).
50	Option 2 is the most correct (pg 82).  Option (d): Qualitative variables (e.g. health and anxiety) and not only quantitative variables (age or percentages) can also be calculated.
51	Option 1 is the most correct (pg 114). Consult Q37 above.
52	Option 4 is the most correct (pg 112).
53	Option 2 is the most correct (pg 112-5). $H_1 = <$ .
54	Option 1 is the most correct (pg 115).
55	Option 1 is the most correct (pg 81).
56	Option 3 is the most correct (pg 75).  $H_1 = U_1 > U_2$
57	Option 3 is the most correct (pg 75).
58	Option 1 is the most correct (pg 112-5). Two groups subjected to two dissimilar treatments.
59	Option 3 is the most correct (pg 119).
60	Option 2 is the most correct (112, 117-121).  Dependent group (same individuals with the same characteristics) tested before and after.
61	Option 3 is the most correct (pg 140).
62	Option 4 is the most correct (pg 140).
63	Option 2 is the most correct (pg 133).
64	Option 3 is the most correct (pg 132-3).  Option 1 (Probabilities can never take negative values)

	Option 2 (Level of significance has to be positive since we are comparing it to the p-value (a probability)).																								
65	Option 3 is the most correct (pg 134). Perfect relationship.																								
66	Option 4 is the most correct (pg 137).																								
67	<p>Option 1 is the most correct (pg 141).</p> <p>For example:</p> <table border="1"> <thead> <tr> <th></th> <th>Schizophrenic</th> <th>Severely depressed</th> <th>Bipolar</th> <th>Others</th> <th><math>\Sigma</math></th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>7</td> <td>3</td> <td>7</td> <td>3</td> <td>20</td> </tr> <tr> <td>Female</td> <td>3</td> <td>7</td> <td>3</td> <td>7</td> <td>20</td> </tr> <tr> <td><math>\Sigma</math></td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>40</td> </tr> </tbody> </table>		Schizophrenic	Severely depressed	Bipolar	Others	$\Sigma$	Male	7	3	7	3	20	Female	3	7	3	7	20	$\Sigma$	10	10	10	10	40
	Schizophrenic	Severely depressed	Bipolar	Others	$\Sigma$																				
Male	7	3	7	3	20																				
Female	3	7	3	7	20																				
$\Sigma$	10	10	10	10	40																				
68	<p>Option 2 is the most correct (pg 132).</p> <p>For example:</p> <table border="1"> <thead> <tr> <th></th> <th>X</th> <th>Y</th> <th><math>\Sigma</math></th> </tr> </thead> <tbody> <tr> <td>A</td> <td>6</td> <td>4</td> <td>10</td> </tr> <tr> <td>B</td> <td>4</td> <td>6</td> <td>10</td> </tr> <tr> <td><math>\Sigma</math></td> <td>10</td> <td>10</td> <td>20</td> </tr> </tbody> </table>		X	Y	$\Sigma$	A	6	4	10	B	4	6	10	$\Sigma$	10	10	20								
	X	Y	$\Sigma$																						
A	6	4	10																						
B	4	6	10																						
$\Sigma$	10	10	20																						
69	Option 2 is the most correct (pg 141).																								
70	Option 4 is the most correct (pg 144, 146).																								

PYC 3704 - October/November 2012 – Previous examination paper											
Question	Correct answers and explanations										
1	Option 1 is the most correct (pg 1).										
2	Option 2 is the most correct (pg 10-1).										
3	Option 2 is the most correct (pg 11-3).										
4	Option 3 is the most correct (pg 11– 2).										
5	Option 3 is the most correct (pg 2). Option 1 (theory). Option 2 (hypothesis).										
6	Option 3 is the most correct (pg 2). Empirical knowledge has undergone testing (experimentation or observation). Theory is based on the knowledge base we already have in a field of study, e.g. psychology.										
7	Option 3 is the most correct (pg 7). Manifest – observable.										
8	Option 2 is the most correct (pg 8).  The more visual perceptual ability (cause) you have, the more likely you are to pass the math test (effect).										
9	Option 4 is the most correct (pg 21, 24 – Q8).										
10	Option 1 is the most correct (pg 18, 19, 21, 24 –Q8).										
11	Option 2 is the most correct (pg 8). Hypothesis is an intelligent guess.										
12	Option 4 is the most correct (pg 2, 3-4, 7, 18). Constructs are theoretical building concepts. Constructs are hidden (theoretical) and therefore cannot be measured. Instead, they have to first be converted to measurements or variables, variables are visible (numerical). When variables, especially using sample statistics (mean and standard deviation).										
13	Option 1 is the most correct. (pg 11-3).										
14	Option 2 is the most correct (pg 18).  For example: <table border="1" data-bbox="258 1144 815 1332"> <thead> <tr> <th></th> <th>Number of children</th> </tr> </thead> <tbody> <tr> <td>Ages in months</td> <td></td> </tr> <tr> <td>(1-4)</td> <td>8</td> </tr> <tr> <td>(5-8)</td> <td>9</td> </tr> <tr> <td>(9-12)</td> <td>6</td> </tr> </tbody> </table>		Number of children	Ages in months		(1-4)	8	(5-8)	9	(9-12)	6
	Number of children										
Ages in months											
(1-4)	8										
(5-8)	9										
(9-12)	6										
15	Option 1 is the most correct.  $6 / 100 = 0,06$										
16	Option 4 is the most correct.										
17	Option 4 is the most correct (pg 79). Sample means (all possible means = population mean). Standard deviation of the population mean = standard error).										
18	Option 3 is the most correct (pg 58). Consult Q 17 above.										
19	Option 3 is the most correct.  Subject A = $\frac{50-46}{2} = \frac{4}{2} = 2$  Subject B = $\frac{55-50}{4} = \frac{5}{4} = 1,25$  Subject C = $\frac{60-50}{6} = \frac{10}{6} = 1,67$  Subject D = $\frac{66-65}{3} = \frac{1}{3} = 0,3$  Student X thus did well in Subject A.										

20	Option 4 is the most correct (Appendix D – Small area – p-value).
21	Option 4 is the most correct (pg 53).
22	Option 1 is the most correct (pg 53).
23	Option 2 is the most correct (Appendix D).  $z - score = \frac{14-20}{8} = \frac{-6}{8} = -0,75$ <p>-3, -2, -1,      -0,75,   -0,50   -0,25,   <b>0</b>   +0,25   +0,50   +0,75      +1 +2, +3</p>
24	Option 3 is the most correct (pg 60-1). A larger sample (sample mean) will begin to show a value closer to the population mean and standard deviation (standard error).
25	Option 4 is the most correct (pg 52).
26	Option 1 is the most correct (pg 60). Option 2 (z-score). Option 4 (p-value).
27	Option 1 is the most correct (pg 74).
28	Option 3 is the most correct (Appendix D).
29	Option 4 is the most correct (pg 75).
30	Option 2 is the most correct (pg 85).
31	Option 1 is the most correct (pg 83-5).  Type-one error – reject null hypothesis - p-value is smaller than chosen level of significance. Type-two error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).
32	Option 2 is the most correct (pg 85).
33	Option 2 is the most correct (pg 124, 127). We will apply the results to all artists who studied perspective.
34	Option 1 is the most correct (pg 75). Rose is “wondering” and clearly not making a prediction of the relationship between these variables (≠). Compare Q25 of May/June 2011.
35	Option 2 is the most correct (pg 75).
36	Option 4 is the most correct.  $S_x = 1,7 / \sqrt{100}$ $= 1,7 / 10 = 0,17$
37	Option 2 is the most correct (pg 177). One sample was tested. Population standard deviation was not given (σ). Consult Appendix F (pg 177).
38	Option 1 is the most correct (pg 100). Null always reflects a constant value (no difference). We assume that it is true since it is derived from the population (that is when all people, cases or events have been tested). The alternative hypothesis is based on the figures/calculations obtained using a sample. Type 1 error – p-value smaller than chosen level of significance – thus do not reject alternative hypothesis (remember that we never accept the alternative because of possible error).
39	Option 2 is the most correct (pg 85). Consult Q24 above.
40	Option 1 is the most correct (pg 81). Consult Q31 above.
41	Option 4 is the most correct (pg 78). Probabilities are based on possibilities, there is always a chance they might not be true. Chance and sampling error enter to influence the accuracy of our calculations.
42	Option 1 is the most correct (pg 83).
43	Option 2 is the most correct (pg 87).
44	Option 4 is the most correct (pg 91). Compare to Q55 and May/June 2013 – Q31.
45	Option 4 is the most correct.  $z\text{-score} = \frac{10 - 7}{2,0}$ $= \frac{3}{2,0} = 1,5$
46	Option 1 is the most correct (pg 177).



	No need to do calculations because it's a negative relationship (as values on the X-axis increases, values on the Y-axis decrease).
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	PYC 3704 - May/June 2013 – Previous examination paper
Question	Correct answers and explanations
1	Option 4 is the most correct (pg 1).
2	Option 3 is the most correct (pg 2). Empirical knowledge has undergone testing (experimentation or observation). Theory is based on the knowledge base we already have in a field of study, e.g. psychology.
3	Option 2 is the most correct (pg 5). Option 1 (Operationalization). Option 3 (Research hypothesis). Option 4 (Variable).
4	Option 4 is the most correct (pg 7-8).
5	Option 3 is the most correct (pg 7).
6	Option 2 is the most correct (pg 21, 24 – Q8).
7	Option 1 is the most correct (pg 19). (a) Chi-square.
8	Option 2 is the most correct (pg 11-3).
9	Option 1 is the most correct (pg 10-1).
10	Option 1 is the most correct (pg 8).
11	Option 3 is the most correct (pg 19).
12	Option 4 is the most correct (pg 4). Theory is based on the knowledge base we already have in a field of study, e.g. psychology. Hypothesis is an intelligent guess.
13	Option 1 is the most correct.  One half of hypnotizable students = $350 / 2 = 175$  Two-thirds of the hypnotizable non-students = $180 / 3 = 60$ (Two-thirds = $60 + 60 = 120$ )  Total of hypnotizable students and non-students = $175 + 120 = 295$  Probability = $295 / 539 = 0,55666 = 0,5567$
14	Option 1 is the most correct (pg 171). Consult Appendix D.
15	Option 4 is the most correct.  $0,5000 = 50\%$
16	Option 3 is the most correct.  Probability of exactly 50%: $600 / 2000 = 0,3$ (30%)  Probability of 50% or more: $1200 / 2000 = 0,6$ (60%)
17	Option 1 is the most correct.  $P(0, 2 \geq) \quad   \quad p(0, 1 \leq)$
18	Option 2 is the most correct (pg 158).  Mean: $100 / 10 = 10$
19	Option 3 is the most correct (pg 55).  Student E = $\frac{9-10}{2,11} = \frac{-1}{2,11} = -0,474$
20	Option 2 is the most correct (pg 53). 0,5 (50%) on the right   0,5 (50%) on the left = 1 (100%)
21	Option 3 is the most correct (pg 54).
22	Option 4 is the most correct (pg 14).
23	Option 4 is the most correct (pg 11).

	<p>(a) Standard deviation might be given  (b) Z-score  (c) <math>x - \mu / \sigma</math></p> <p>For example:</p> $z - score = \frac{x - \mu}{\sigma} = \frac{14 - 20}{8} = \frac{-6}{8} = -0,75$
24	Option 3 is the most correct (pg 58, 94, 96 – Q1, 5). A larger sample (sample mean) will begin to show a value closer to the population mean and standard deviation (standard error).
25	<p>Option 1 is the most correct (pg 53). Alpha gives direct probability.</p> <p>Type-one error – reject null hypothesis - p-value is smaller than chosen level of significance.  Type-two error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).</p>
26	Option 2 is the most correct. One sample was gathered.
27	Option 4 is the most correct (pg 177). Appendix F.
28	Option 4 is the most correct. Consult Q25 above.
29	Option 4 is the most correct (pg 52).
30	<p>Option 3 is the most correct (pg Appendix D).</p> $z - score = \frac{x - \mu}{\sigma} = \frac{66 - 60}{8} = \frac{6}{8} = 0,75$ <p>p-value = 0,773 = 77 % (large area because he scored above 60% grey area)</p> <p>Option 2 (p- 0,02266 (23%) from small area reflects all the number of people who scored above 66% and thus Pete).</p>
31	Option 2 is the most correct (pg 16, 19). Compare Oct 2012 Q44, 59. Option 1 (p-value).Option 2 (power).
32	Option 2 is the most correct (pg 55).
33	Option 1 is the most correct. (If..., then...)
34	Option 1 is the most correct (pg 60-1).
35	Option 2 is the most correct (pg 75).
36	Option 1 is the most correct (pg 75).
37	Option 3 is the most correct (pg 75).
38	Option 3 is the most correct (pg 81).
39	Option 3 is the most correct (pg 75).
40	<p>Option 3 is the most correct (pg 83).</p> <p>Type-one error – reject null hypothesis - p-value is smaller than chosen level of significance.  Type-two error – p-value larger than the chosen level of significance – thus do not accept alternative hypothesis because it is true (do not be misled by the terminology).</p>
41	Option 4 is the most correct (pg 83).
42	Option 2 is the most correct (pg 75).
43	Option 4 is the most correct (pg 80-3).
44	Option 1 is the most correct (pg 177). Appendix F.
45	Option 1 is the most correct. One sample was gathered. Population standard deviation ( $\sigma$ ) was not given (consult Appendix F – pg 177).
46	Option 3 is the most correct (pg 75).
47	Option 2 is the most correct (pg 177). Population standard deviation ( $\sigma$ ) was not given (consult Appendix F – pg 177).

48	<p>Option 3 is the most correct.</p> <p>Standard error = <math>6,0 / \sqrt{25}</math>  <math>= 6,0 / 5</math>  <math>= 1,2</math></p> <p>Difference between sample and population mean = <math>22,3 - 20</math>  <math>= 2,3</math>  Thus = <math>2,3 / 1,2</math></p>
49	Option 1 is the most correct (pg 112).
50	Option 1 is the most correct (pg 75). We are not sure in which direction the results will follow.
51	Option 3 is the most correct (pg 112-5).
52	Option 4 is the most correct (pg 116). Cohen's D.
53	Option 2 is the most correct (pg 115).
54	<p>Option 2 is the most correct (pg 112).</p> <p>Dependent group (same individuals with the same characteristics) tested before and after.</p>
55	Option 3 is the most correct (pg 112, 118). Z-test – $\sigma$ is given.
56	Option 1 is the most correct (pg 75).
57	Option 1 is the most correct (pg 177). Consult Q 55 above. Population standard deviation ( $\sigma$ ) was given (Appendix F – pg 177).
58	Option 3 is the most correct (pg 106).
59	Option 1 is the most correct (pg 81).
60	Option 3 is the most correct (129).
61	Option 2 is the most correct (pg 133).
62	Option 1 is the most correct (pg 133). No need to do calculations because it's a negative relationship (as values on the X-axis increases, values on the Y-axis decrease).
63	Option 1 is the most correct (pg 137).
64	<p>Option 4 is the most correct (pg 144).</p> <p><math>12 \times 10 / 24 = 120 / 24 = 5</math></p>
65	Option 2 is the most correct (pg 137). We use Pearson's product-moment correlation coefficient to calculate relationships.
66	Option 1 is the most correct (pg 144).
67	Option 1 is the most correct (pg 133).
68	Option 4 is the most correct (pg 133, 137).
69	Option 2 is the most correct (pg 142).
70	Option 1 is the most correct (pg 144).