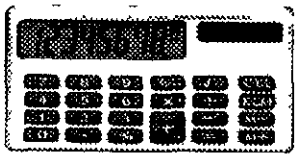
UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

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PSYCHOLOGICAL RESEARCH (PSYCHOLOGY)

Duration 2 Hours 70 Marks

EXAMINERS

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Use of a non-programmable pocket calculator is permissible

This paper consists of 17 pages plus 2 blank pages for rough work (pp 18 & 19) plus 1 page (i) of formulae and tables(ii-v) as well as instructions for the completion of a mark reading sheet

This examination paper remains the property of the University of South Africa and may not be removed from the examination room

After completing your answers, you must hand in the following

(i) The mark reading sheet
(ii) The question paper (All the pages must be handed in)

This exam paper consists of seventy items Your mark will be converted to a mark out of 90 and 10% of your assignment mark will be added, to produce a mark out of 100 [Note that if your mark is less than 40% the assignment mark will not be added]

ENSURE THAT YOU HAVE WRITTEN YOUR **STUDENT NUMBER** AND **COURSE CODE** ON THE MARK READING SHEET

Please complete the attendance register on the back page, tear off and hand to the invigilator

NOTE An adjustment will be made for guessing based on the number of items answered incorrectly

[TURN OVER]

ANSWER THE FOLLOWING SEVENTY MULTIPLE CHOICE QUESTIONS ON THE MARK READING SHEET. READ THE ATTACHED INSTRUCTIONS AND FOLLOW THEM CAREFULLY.

Question 1

A theory can be described as an interdependent set of - - - - - relations between - - - - -

1 proposed, constructs
2 empirical, hypotheses
3 verified, variables

Use the following scenario to answer Questions 2 to 4

"My explanation of acute stress disorder indicates how the intensity of stress is affected by patients' anxiety proneness, whether or not they received psychotherapy, and the nature of the traumatic stressor My research will investigate whether such patients' level of anxiety is actually reduced by psychotherapy More specifically, patients receiving therapy are expected to score lower on the Manifest Anxiety Scale than patients not receiving therapy "

Question 2

"My explanation of acute stress disorder" is a - - - - -

1 scientific hypothesis
2 theory
3 postulated relation between two constructs

Question 3

The dependent variable(s) in my research is/are - - - - -

1 anxiety proneness, nature of the traumatic stressor, and psychotherapy
2 whether or not psychotherapy is received
3 level of anxiety experienced by patients

Question 4

When interpreting the results of this research I will assume that anxiety proneness and the nature of the traumatic stressor - - - - -

1 do affect level of anxiety, but their effects more or less cancel out over all my patients
2 do not affect level of anxiety
3 do affect level of anxiety, but according to the central limit theorem their average effect will be zero

Question 5

An operationally defined variable is - - - - -

1 abstract
2 latent
3 observable

Question 6

Psychological research is usually carried out to - - - - -

1 gather data on human behaviour
2 develop and empirically test theories of human behaviour
3 diagnose psychological problems

Question 7

The building blocks of psychological theories are most accurately described as - - - - -

1 concepts
2 constructs
3 variables

Question 8

A researcher conducts an experiment with two groups of university students The students in the first group are all given 125 ml of alcohol to drink, while the students in the second group are required to drink 350 ml of alcohol each She then tests their motor coordination in a series of tests and finds that the subjects in the second group are significantly slower in these tests than the subjects in the first group

Which of the following is the most appropriate formulation of the researcher's research hypothesis?

1 A study of the speed of motor coordination among students
2 Comparing two groups on alcohol consumption
3 The effect of alcohol consumption on motor performance

Question 9

Operational definitions of a concept are definitions which define a concept in terms of - - - -

1 other concepts
2 observable instances
3 latent variables

Question 10

The (a) - - - - - variable can be said to "be caused by" the (b) - - - - - variable

1 (a) dependent (b) independent
2 (a) operational (b) measured
3 (a) independent (b) dependent

Question 11

In a study, the relationship between level of physiological arousal (high and low) and mood (measured on three levels) is considered A suitable hypothesis for the study can be viewed as a - - - - -

1 rule associating the values of 'physiological arousal' with the values of 'mood'
2 correlation between the constants 'physiological arousal' and 'mood'
3 rule correlating the values of the variable 'physiological arousal'

Question 12

Assume that a researcher believes that education plays a role in promotion at the company Computer Solutions Inc Which one of the following is the most appropriate operational hypothesis?

1 Education plays a role in deciding on the promotion of employees at Computer Solutions Inc
2 Employees with higher levels of education earn more than employees with lower levels of education at Computer Solutions Inc
3 Employees with higher levels of education are more likely to be promoted at Computer Solutions Inc than employees with lower education at corresponding post levels

Question 13

Which of the following does **NOT** represent a probability?

1 99%
2 0
3 -0,05

Question 14

During the interpretation of psychological measurements the normal distribution is - - - - -

1 adapted to fit the observed frequency distribution of scores
2 used as a theoretical model for interpreting the observed distribution of scores
3 used to calculate the relative frequency of observed scores

Question 15

Joseph scores 60% in a History test (class mean 65%, standard deviation 10%) and 50% in a Biology test (class mean 53%, standard deviation 12%) Use z-scores to decide which statement is true Relative to the rest of his class Joseph does - - - - -

1 better in Biology than in History
2 better in History that in Biology
3 equally well in History and Biology

Question 16

If 10 000 students wrote a university admission test, 7000 passed (obtained 50% or more) and 300 obtained exactly 50%, what is the probability that a randomly selected student will fail the test?

1 $p \leq 0,50$
2 $p = 0,67$
3 $p = 0,30$

Question 17

All normal distributions are - - - - - and - - - - -

1 asymptotic, continuous
2 symmetrical, have a mean of zero
3 bell-shaped, have the same standard deviation

Question 18

Suppose the height of military recruits is distributed normally with a mean of 1750 mm and a standard deviation of 50 mm Drawing repeated samples of 25 recruits each we expect the standard deviation of the sample means to be about - - - - - mm

1 2
2 10
3 50

Base your answers to Questions 19 and 20 on the following scenario

A class of 10 boys and 11 girls, including Mary and her friend Elizabeth, chooses a class representative by writing the names of everybody in the class on slips of paper, putting these into a box and asking their teacher to draw one name blindly

Question 19

What is the probability that Mary will be selected?

1 1/11
2 1/20
3 1/21

Question 20

What is the probability that **EITHER** Mary **OR** Elizabeth will be selected?

1 2/21
2 2/11
3 2/19

Question 21

A college student claims that he can identify different types of cheese by taste An experiment is set up to test his ability He is blindfolded and given three pieces of cheese, each representing a different type What is the probability that he will correctly identify one particular piece of cheese?

1 0,25
2 0,16
3 0,33

Question 22

The central limit theorem states that

1 Sampling error will increase as the population increases
2 The sampling error will gradually assume a normal distribution for larger samples
3 The sampling distribution of certain sampling statistics will approach a normal distribution as n increases

Question 23

Select the correct notation from the options below for the statement 'The probability value is larger than ½'

1 $p \geq 0,05$
2 $p < 0,05$
3 $p > 0,5$

Question 24

In a population there are 450 people of whom 150 do not smoke What is the probability of randomly selecting a smoker from this population?

1 0,67
2 0,33
3 0,5

Base your answers to Questions **25 and 26** on the following scenario

Suppose that the memory span of adults is normally distributed with a mean of 7 items and a standard deviation of 2 items A researcher predicts that "dyslexic adults have a shorter memory span than adults in general"

Question 25

Which of the following is an appropriate alternative hypothesis for testing the above prediction?

1 The mean memory span of the population of dyslexic adults is smaller than 7
2 The mean memory span of the population of adults is not equal to 7
3 The mean memory span of the population of dyslexic adults equals 7

Question 26

Testing the above prediction will require a - - - - - statistical test

1 non-directional
2 two-tailed
3 directional

Question 27

When applying a z-test to compare a sample mean to a known population mean, the p-value represents the probability of - - - - -

1 correctly rejecting the null hypothesis
2 obtaining the sample mean under the alternative hypothesis
3 obtaining the sample mean under the null hypothesis

Question 28

When applying a statistical test, if the p-value is larger than the level of significance we - - - - - the alternative hypothesis

1 do not accept
2 fail to reject
3 accept

Question 29

Which of the following assumptions do we make when applying a statistical test?

1 That the null hypothesis is true
2 That the alternative hypothesis is true
3 That the null hypothesis is false

Question 30

The hypothesis "H_1 μ is not equal to 50" is a - - - - - hypothesis and requires a - - - - - statistical test

1 non-directional, one-tailed
2 non-directional, two-tailed
3 directional, two-tailed

Question 31

A type I error occurs when - - - - -

1 the null hypothesis is wrongly rejected
2 the null hypothesis is wrongly not rejected
3 the alternative hypothesis is wrongly rejected

Question 32

The size of the level of significance depends on - - - - -

1 a choice made by the researcher
2 conventional rules
3 the p-value under H_0

Question 33

A failure to reject H_0 implies that a difference between the calculated sample mean and its expected value under H_0 is due to - - - - -

1 the dependent variable
2 the independent variable
3 chance

Question 34

What does it mean to say "the difference between the means of groups A and B is statistically significant"?

1 The sample result is more probable under the alternative hypothesis
2 The null hypothesis explains the sample result
3 The alternative hypothesis should be rejected

Base your answers to Questions 35 and 36 on the following hypothesis

"The mean extroversion score on the Eysenck Personality Questionnaire (EPQ) of women who support abortion is higher than that of women who oppose it "

Question 35

What constructs will be investigated in this research?

1 Extroversion scores on the EPQ, attitude towards abortion
2 Extroversion, abortion
3 Extroversion, attitude towards abortion

Question 36

How would you describe the research population(s)?

1 Women who support and women who oppose abortion
2 All women
3 Women who completed the EPQ

Question 37

The alternative hypothesis is often a re-statement of the - - - - - hypothesis

1 statistical
2 research
3 null

Question 38

How do sampling errors and errors of measurement affect the characteristics of a statistical test?

1 They reduce its power
2 They lower its level of significance
3 They increase the probability of a type I error

Question 39

A p-value reported as "0,0000" is actually - - - - -

1 smaller than 0,0001
2 exactly zero
3 too small to calculate

Question 40

The p-value depends on - - - - -

1 the value of the standard error
2 the value of the test statistic
3 the level of significance

Question 41

Suppose the level of significance is set at 0,05, and the appropriate p-value is found to be 0,06 What is the probability that the researcher will be making a type II error?

1 0,06
2 0,05
3 normally not possible to calculate

Question 42

Suppose the level of significance is set at 0,05, and the appropriate p-value is found to be 0,04 What is the probability that the researcher will be making a type I error?

1 0,04
2 0,05
3 0,01

Question 43

When two population means are compared, the p-value expresses the probability of the difference between the sample means given that - - - - -

1 H_0 is true
2 H_1 is true
3 H_0 is false

Question 44

A researcher wants to test the hypothesis that there is a significant difference in the general level of stress between two groups of students He decides that a t-test can be used to compare the means of the two groups on a level of significance of 0,05

The result of the test, as output by a computer program, is as follows

$t = 0,86$
$p = 0,090$

He decides that the null hypothesis cannot be rejected because - - - - -

1 $t > p$
2 $t > \alpha$
3 $p > \alpha$

Base your answers to Questions 45 and 46 on the following scenario

You wish to test the hypothesis that the majority of persons aged 70 years or more are females Using registers of pensioners you obtain a random sample of 250 persons aged 70 or more and find that 150 of them are female

Question 45

Which research design did you use?

1 A correlational design with variables measured on a nominal scale
2 A two-groups design with measures of age and gender
3 A single-sample groups design

Question 46

What are the requirements with regard to statistical testing of the results?

1 A one-tailed statistical test should be performed
2 A two-tailed statistical test should be performed
3 No statistical test is required

Question 47

You flip a coin 25 times, obtaining "heads" 15 times, and wish to test statistically whether the coin might be biased

What is the z_p value?

1 0,1
2 0,2
3 1,0

Question 48

Consider the following statistical hypothesis

H_0 P = 0,7
H_1 P > 0,7

If the sample proportion is found to be 0,08, the sample size 21 and the z_p value is 1,0, what is the p-value?

1 0,16
2 0,32
3 0,08

Question 49

Which of the following is referred to as a *standard error*?

1 The error of rejecting the null hypothesis when you should not reject it
2 It is another name for the standard deviation
3 The standard deviation of the sampling distribution of the mean

Question 50

Consider the following statistical hypotheses

H_0 $\mu = 50$
H_1 $\mu > 50$

Suppose the two-tailed p-value is 0,0345 and the level of significance is set at 0,05. The sample mean was found to be 55. What is the value of the one-tailed or directional p-value?

1 0,10
2 0,0173
3 0,0690

Base your answers to Questions 51 to 54 on the following scenario

To test the efficacy of psychotherapy aimed at relieving depression, a researcher applies a depression scale to 50 depressed patients at the start and again at the end of their treatment, predicting that the latter scores will be lower (reflecting less depression) Scores on his depression scale among the general population have a mean of 30 and a standard deviation of 10

Question 51

The depression scores of which population(s) are studied in this research?

1 The general population
2 The 50 participants in the research
3 Depressed patients that could potentially have undergone psychotherapy

Question 52

Which is an appropriate alternative hypothesis for the analysis of the results?

1 $\mu < 30$
2 $\mu_1 < \mu_2$
3 The population mean of the difference scores (after psychotherapy minus before psychotherapy) is larger than zero

Question 53

Which is an appropriate null hypothesis for the analysis of the results?

1 $\mu = 30$
2 $\mu_1 \neq \mu_2$
3 The population mean of the difference scores equals zero

Question 54

Which is the appropriate test statistic to calculate?

1 The z-statistic for the mean of a single sample
2 The t-statistic for the difference between the means of two dependent samples
3 The t-statistic for the mean of a single sample

Question 55

A researcher predicts that a motivational talk will improve the work performance of men However, he finds that the mean work performance of his sample of 20 men is actually poorer after the motivational talk than before What statistical test is required to analyse his/her results?

1 A one-tailed statistical test is required
2 A two-tailed statistical test is required
3 No statistical test is required

Question 56

Samples can be considered independent when - - - - -

1 the composition of one sample is not systematically related to the composition of the other one
2 care was taken that the samples are drawn under different experimental conditions
3 the samples are drawn from more than a single population of subjects

Question 57

Which of the following formulas would you use to calculate the t-test for the comparison of means for independent samples?

1 $$\frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

2 $$\frac{(\bar{d} - \bar{D})}{\frac{s_{\bar{d}}}{\sqrt{n}}}$$

3 $$\frac{(\bar{x} - \mu_{\bar{x}})}{s_{\bar{x}}}$$

Question 58

The z_c statistic for comparing proportions should be used - - - - -

1 for comparing data from independent groups
2 for comparing data from dependent groups
3 irrespective of whether the data comes from dependent or independent groups

Question59

In which of the following cases can the scores on two variables be regarded as independent?

1 The variables represent exam scores of children from two schools, matched on demographic criteria like grade, gender and age
2 The variables represent scores from subjects on a motivational scale, who were tested before and after listening to a presentation by a motivational speaker
3 The scores on neither of the above examples may be regarded as independent

Question 60

Which of the following statements about the relationship between the value of the t-test statistic and the probability value p is true, if the sample size n remains constant?

1 The larger the value of the t-test statistic, the smaller p will be
2 The smaller the value of the t-test statistic, the smaller p will be
3 There is no relationship between p and the t-test statistic

Question 61

A scatter plot is a graphical representation of the relation between - - - - -

1 two variables measured on a nominal scale within a single group
2 two variables measured on a ratio or interval scale within a single group
3 two groups of subjects with regard to a single variable measured on an interval or ratio scale

Question 62

A researcher hypothesizes that the drug treatment of hospitalised schizophrenic patients improves their mental alertness He studies a random sample of 27 such patients and finds a correlation coefficient of 0,6 between the number of days of drug treatment and patients' scores on the Mental Alertness Test

Which is an appropriate null hypothesis for this research?

1 $\rho = 0$
2 $\mu = 0$
3 $r = 0$

Question 63

A researcher hypothesizes that general intelligence underlies students' performance in both history and mathematics He investigates this idea by tabulating for each of his students whether they (a) passed or failed their last history examination, and (b) passed or failed their last mathematics examination Which research design is he using?

1 A correlational design
2 A two-sample groups design
3 A one-sample groups design

Question 64

What is the correlation coefficient between the following values of X and Y?

X	0	1	2
Y	2	1	0

1 -1
2 0
3 +1

Question 65

Which of the following can never have a value of -0,5?

1 The chi-square statistic
2 The z-statistic
3 The Pearson correlation coefficient

Question 66

What is the expected frequency in cell AX of the following contingency table?

	X	Y
A	7	3
B	3	7

1 3
2 5
3 7

Question 67

Which of the following does **NOT** represent a valid value for a Pearson's r?

1 0,00
2 1,09
3 -0,99

Question 68

A researcher wants to establish whether the type of employment category that is filled by employees of a particular company (manager, middle manager, clerical worker, technical worker) is at all influenced by their gender (male or female) Which would be the most appropriate test to use?

1 the t-test for two independent samples
2 Pearson's correlation test statistic
3 the chi-square (χ^2) test statistic

Question 69

For a smaller sample size (n) - - - - -

1 a smaller value of a Pearson's correlation coefficient r will reach significance
2 a larger value of a Pearson's correlation coefficient r is required before the result will be significant
3 there are no implications for the significance of the value of a Pearson's correlation coefficient r

Question 70

The chi-square (χ^2) test statistic is used to compare - - - - -

1 the frequency distribution of observed data with the frequency distribution of the data that is expected if the null hypothesis is true
2 the variance of observed data with the variance of the data as expected if the null hypothesis is true
3 the covariance of two variables X and Y with the square root of the product (multiplication) of their respective variances

[TOTAL: 70]

END OF EXAM PAPER

List of formulae:

$$Z_{\bar{X}} = \frac{\left(\overline{X} - \mu_{\overline{X}}\right)}{\frac{\sigma}{\sqrt{n}}}$$

$$t_C = \frac{\left(\overline{X_1} - \overline{X_2}\right)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$t_{\overline{d}} = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\, s_1\, s_2}}$$

$$z_C = \frac{\left(p_1 - p_2\right)}{\sqrt{\frac{p_1\left(1-p_1\right)}{n_1} + \frac{p_2\left(1-p_2\right)}{n_2}}}$$

$$r = \frac{\operatorname{cov}(X,Y)}{\sqrt{\operatorname{var}(X)\operatorname{var}(Y)}}$$

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

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

$$\chi_p^2 = \sum_{ij} \frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}}$$

$$t_{\overline{X}} = \frac{\left(\overline{X} - \mu_{\overline{X}}\right)}{s_{\overline{X}}}$$

$$z_p = \frac{\left(p - P_O\right)}{\sqrt{P\left(1-P_O\right)/n}}$$

The standard normal distribution

z	Mean to z	Larger Portion	Smaller Portion	z	Mean to z	Larger Portion	Smaller Portion
00	0 0000	0 5000	0 5000	45	0 1736	0 6736	0 3264
01	0 0040	0 5040	0 4960	46	0 1772	0 6772	0 3228
02	0 0080	0 5080	0 4920	47	0 1808	0 6808	0 3192
03	0 0120	0 5120	0 4880	48	0 1844	0 6844	0 3156
04	0 0160	0 5160	0 4840	49	0 1879	0 6879	0 3121
05	0 0199	0 5199	0 4801	50	0 1915	0 6915	0 3085
06	0 0239	0 5239	0 4761	51	0 1950	0 6950	0 3050
07	0 0279	0 5279	0 4721	52	0 1985	0 6985	0 3015
08	0 0319	0 5319	0 4681	53	0 2019	0 7019	0 2981
09	0 0359	0 5359	0 4641	54	0 2054	0 7054	0 2946
10	0 0398	0 5398	0 4602	55	0 2088	0 7088	0 2912
11	0 0438	0 5438	0 4562	56	0 2123	0 7123	0 2877
12	0 0478	0 5478	0 4522	57	0 2157	0 7157	0 2843
13	0 0517	0 5517	0 4483	58	0 2190	0 7190	0 2810
14	0 0557	0 5557	0 4443	59	0 2224	0 7224	0 2776
15	0 0596	0 5596	0 4404	60	0 2257	0 7257	0 2743
16	0 0636	0 5636	0 4364	61	0 2291	0 7291	0 2709
17	0 0675	0 5675	0 4325	62	0 2324	0 7324	0 2676
18	0 0714	0 5714	0 4286	63	0 2357	0 7357	0 2643
19	0 0753	0 5753	0 4247	64	0 2389	0 7389	0 2611
20	0 0793	0 5793	0 4207	65	0 2422	0 7422	0 2578
21	0 0832	0 5832	0 4168	66	0 2454	0 7454	0 2546
22	0 0871	0 5871	0 4129	67	0 2486	0 7486	0 2514
23	0 0910	0 5910	0 4090	68	0 2517	0 7517	0 2483
24	0 0948	0 5948	0 4052	69	0 2549	0 7549	0 2451
25	0 0987	0 5987	0 4013	70	0 2580	0 7580	0 2420
26	0 1026	0 6026	0 3974	71	0 2611	0 7611	0 2389
27	0 1064	0 6064	0 3936	72	0 2642	0 7642	0 2358
28	0 1103	0 6103	0 3897	73	0 2673	0 7673	0 2327
29	0 1141	0 6141	0 3859	74	0 2704	0 7704	0 2296
30	0 1179	0 6179	0 3821	75	0 2734	0 7734	0 2266
31	0 1217	0 6217	0 3783	76	0 2764	0 7764	0 2236
32	0 1255	0 6255	0 3745	77	0 2794	0 7794	0 2206
33	0 1293	0 6293	0 3707	78	0 2823	0 7823	0 2177
34	0 1331	0 6331	0 3669	79	0 2852	0 7852	0 2148
35	0 1368	0 6368	0 3632	80	0 2881	0 7881	0 2119
36	0 1406	0 6406	0 3594	81	0 2910	0 7910	0 2090
37	0 1443	0 6443	0 3557	82	0 2939	0 7939	0 2061
38	0 1480	0 6480	0 3520	83	0 2967	0 7967	0 2033
39	0 1517	0 6517	0 3483	84	0 2995	0 7995	0 2005
40	0 1554	0 6554	0 3446	85	0 3023	0 8023	0 1977
41	0 1591	0 6591	0 3409	86	0 3051	0 8051	0 1949
42	0 1628	0 6628	0 3372	87	0 3078	0 8078	0 1922
43	0 1664	0 6664	0 3336	88	0 3106	0 8106	0 1894
44	0 1700	0 6700	0 3300	89	0 3133	0 8133	0 1867

The standard normal distribution

z	Mean to z	Larger Portion	Smaller Portion	z	Mean to z	Larger Portion	Smaller Portion
90	0 3159	0 8159	0 1841	1 35	0 4115	0 9115	0 0885
91	0 3186	0 8186	0 1814	1 36	0 4131	0 9131	0 0869
92	0 3212	0 8212	0 1788	1 37	0 4147	0 9147	0 0853
93	0 3238	0 8238	0 1762	1 38	0 4162	0 9162	0 0838
94	0 3264	0 8264	0 1736	1 39	0 4177	0 9177	0 0823
95	0 3289	0 8289	0 1711	1 40	0 4192	0 9192	0 0808
96	0 3315	0 8315	0 1685	1 41	0 4207	0 9207	0 0793
97	0 3340	0 8340	0 1660	1 42	0 4222	0 9222	0 0778
98	0 3365	0 8365	0 1635	1 43	0 4236	0 9236	0 0764
99	0 3389	0 8389	0 1611	1 44	0 4251	0 9251	0 0749
1 00	0 3413	0 8413	0 1587	1 45	0 4265	0 9265	0 0735
1 01	0 3438	0 8438	0 1562	1 46	0 4279	0 9279	0 0721
1 02	0 3461	0 8461	0 1539	1 47	0 4292	0 9292	0 0708
1 03	0 3485	0 8485	0 1515	1 48	0 4306	0 9306	0 0694
1 04	0 3508	0 8508	0 1492	1 49	0 4319	0 9319	0 0681
1 05	0 3531	0 8531	0 1469	1 50	0 4332	0 9332	0 0668
1 06	0 3554	0 8554	0 1446	1 51	0 4345	0 9345	0 0655
1 07	0 3577	0 8577	0 1423	1 52	0 4357	0 9357	0 0643
1 08	0 3599	0 8599	0 1401	1 53	0 4370	0 9370	0 0630
1 09	0 3621	0 8621	0 1379	1 54	0 4382	0 9382	0 0618
1 10	0 3643	0 8643	0 1357	1 55	0 4394	0 9394	0 0606
1 11	0 3665	0 8665	0 1335	1 56	0 4406	0 9406	0 0594
1 12	0 3686	0 8686	0 1314	1 57	0 4418	0 9418	0 0582
1 13	0 3708	0 8708	0 1292	1 58	0 4429	0 9429	0 0571
1 14	0 3729	0 8729	0 1271	1 59	0 4441	0 9441	0 0559
1 15	0 3749	0 8749	0 1251	1 60	0 4452	0 9452	0 0548
1 16	0 3770	0 8770	0 1230	1 61	0 4463	0 9463	0 0537
1 17	0 3790	0 8790	0 1210	1 62	0 4474	0 9474	0 0526
1 18	0 3810	0 8810	0 1190	1 63	0 4484	0 9484	0 0516
1 19	0 3830	0 8830	0 1170	1 64	0 4495	0 9495	0 0505
1 20	0 3849	0 8849	0 1151	1 65	0 4505	0 9505	0 0495
1 21	0 3869	0 8869	0 1131	1 66	0 4515	0 9515	0 0485
1 22	0 3888	0 8888	0 1112	1 67	0 4525	0 9525	0 0475
1 23	0 3907	0 8907	0 1093	1 68	0 4535	0 9535	0 0465
1 24	0 3925	0 8925	0 1075	1 69	0 4545	0 9545	0 0455
1 25	0 3944	0 8944	0 1056	1 70	0 4554	0 9554	0 0446
1 26	0 3962	0 8962	0 1038	1 71	0 4564	0 9564	0 0436
1 27	0 3980	0 8980	0 1020	1 72	0 4573	0 9573	0 0427
1 28	0 3997	0 8997	0 1003	1 73	0 4582	0 9582	0 0418
1 29	0 4015	0 9015	0 0985	1 74	0 4591	0 9591	0 0409
1 30	0 4032	0 9032	0 0968	1 75	0 4599	0 9599	0 0401
1 31	0 4049	0 9049	0 0951	1 76	0 4608	0 9608	0 0392
1 32	0 4066	0 9066	0 0934	1 77	0 4616	0 9616	0 0384
1 33	0 4082	0 9082	0 0918	1 78	0 4625	0 9625	0 0375
1 34	0 4099	0 9099	0 0901	1 79	0 4633	0 9633	0 0367

The standard normal distribution

z	Mean to z	Larger Portion	Smaller Portion	z	Mean to z	Larger Portion	Smaller Portion
1.80	0.4641	0.9641	0.0359	2.25	0.4878	0.9878	0.0122
1.81	0.4649	0.9649	0.0351	2.26	0.4881	0.9881	0.0119
1.82	0.4656	0.9656	0.0344	2.27	0.4884	0.9884	0.0116
1.83	0.4664	0.9664	0.0336	2.28	0.4887	0.9887	0.0113
1.84	0.4671	0.9671	0.0329	2.29	0.4890	0.9890	0.0110
1.85	0.4678	0.9678	0.0322	2.30	0.4893	0.9893	0.0107
1.86	0.4686	0.9686	0.0314	2.31	0.4896	0.9896	0.0104
1.87	0.4693	0.9693	0.0307	2.32	0.4898	0.9898	0.0102
1.88	0.4699	0.9699	0.0301	2.33	0.4901	0.9901	0.0099
1.89	0.4706	0.9706	0.0294	2.34	0.4904	0.9904	0.0096
1.90	0.4713	0.9713	0.0287	2.35	0.4906	0.9906	0.0094
1.91	0.4719	0.9719	0.0281	2.36	0.4909	0.9909	0.0091
1.92	0.4726	0.9726	0.0274	2.37	0.4911	0.9911	0.0089
1.93	0.4732	0.9732	0.0268	2.38	0.4913	0.9913	0.0087
1.94	0.4738	0.9738	0.0262	2.39	0.4916	0.9916	0.0084
1.95	0.4744	0.9744	0.0256	2.40	0.4918	0.9918	0.0082
1.96	0.4750	0.9750	0.0250	2.41	0.4920	0.9920	0.0080
1.97	0.4756	0.9756	0.0244	2.42	0.4922	0.9922	0.0078
1.98	0.4761	0.9761	0.0239	2.43	0.4925	0.9925	0.0075
1.99	0.4767	0.9767	0.0233	2.44	0.4927	0.9927	0.0073
2.00	0.4772	0.9772	0.0228	2.45	0.4929	0.9929	0.0071
2.01	0.4778	0.9778	0.0222	2.46	0.4931	0.9931	0.0069
2.02	0.4783	0.9783	0.0217	2.47	0.4932	0.9932	0.0068
2.03	0.4788	0.9788	0.0212	2.48	0.4934	0.9934	0.0066
2.04	0.4793	0.9793	0.0207	2.49	0.4936	0.9936	0.0064
2.05	0.4798	0.9798	0.0202	2.50	0.4938	0.9938	0.0062
2.06	0.4803	0.9803	0.0197	2.51	0.4940	0.9940	0.0060
2.07	0.4808	0.9808	0.0192	2.52	0.4941	0.9941	0.0059
2.08	0.4812	0.9812	0.0188	2.53	0.4943	0.9943	0.0057
2.09	0.4817	0.9817	0.0183	2.54	0.4945	0.9945	0.0055
2.10	0.4821	0.9821	0.0179	2.55	0.4946	0.9946	0.0054
2.11	0.4826	0.9826	0.0174	2.56	0.4948	0.9948	0.0052
2.12	0.4830	0.9830	0.0170	2.57	0.4949	0.9949	0.0051
2.13	0.4834	0.9834	0.0166	2.58	0.4951	0.9951	0.0049
2.14	0.4838	0.9838	0.0162	2.59	0.4952	0.9952	0.0048
2.15	0.4842	0.9842	0.0158	2.60	0.4953	0.9953	0.0047
2.16	0.4846	0.9846	0.0154	2.61	0.4955	0.9955	0.0045
2.17	0.4850	0.9850	0.0150	2.62	0.4956	0.9956	0.0044
2.18	0.4854	0.9854	0.0146	2.63	0.4957	0.9957	0.0043
2.19	0.4857	0.9857	0.0143	2.64	0.4959	0.9959	0.0041
2.20	0.4861	0.9861	0.0139	2.65	0.4960	0.9960	0.0040
2.21	0.4864	0.9864	0.0136	2.66	0.4961	0.9961	0.0039
2.22	0.4868	0.9868	0.0132	2.67	0.4962	0.9962	0.0038
2.23	0.4871	0.9871	0.0129	2.68	0.4963	0.9963	0.0037
2.24	0.4875	0.9875	0.0125	2.69	0.4964	0.9964	0.0036

The standard normal distribution

z	Mean to z	Larger Portion	Smaller Portion	z	Mean to z	Larger Portion	Smaller Portion
2 70	0 4965	0 9965	0 0035	2 90	0 4981	0 9981	0 0019
2 71	0 4966	0 9966	0 0034	2 91	0 4982	0 9982	0 0018
2 72	0 4967	0 9967	0 0033	2 92	0 4982	0 9982	0 0018
2 73	0 4968	0 9968	0 0032	2 93	0 4983	0 9983	0 0017
2 74	0 4969	0 9969	0 0031	2 94	0 4984	0 9984	0 0016
2 75	0 4970	0 9970	0 0030	2 95	0 4984	0 9984	0 0016
2 76	0 4971	0 9971	0 0029	2 96	0 4985	0 9985	0 0015
2 77	0 4972	0 9972	0 0028	2 97	0 4985	0 9985	0 0015
2 78	0 4973	0 9973	0 0027	2 98	0 4986	0 9986	0 0014
2 79	0 4974	0 9974	0 0026	2 99	0 4986	0 9986	0 0014
2 80	0 4974	0 9974	0 0026	3 00	0 4987	0 9987	0 0013
2 81	0 4975	0 9975	0 0025				
2 82	0 4976	0 9976	0 0024	3 25	0 4994	0 9994	0 0006
2 83	0 4977	0 9977	0 0023				
2 84	0 4977	0 9977	0 0023	3 50	0 4998	0 9998	0 0002
2 85	0 4978	0 9978	0 0022				
2 86	0 4979	0 9979	0 0021	3 75	0 4999	0 9999	0 0001
2 87	0 4979	0 9979	0 0021				
2 88	0 4980	0 9980	0 0020	4 00	0 5000	1 0000	0 0000
2 89	0 4981	0 9981	0 0019				

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EXAMINATION MARK READING SHEET EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g. PSY100 X
STUDIE-EENHEID bv. PSY100-X

1

PAPER NUMBER
VRAESTELNOMMER

2

INITIALS AND SURNAME
VOORLETTERS EN VAN

3

DATE OF EXAMINATION
DATUM VAN EKSAMEN

4

EXAMINATION CENTRE (E.G. PRETORIA)
EKSAMENSENTRUM (BV. PRETORIA)

5

STUDENT NUMBER
STUDENTENOMMER

6

7

UNIQUE PAPER NO
UNIEKE VRAESTEL NR

8

9

For use by examination invigilator

Vir gebruik deur eksamenopsiener

IMPORTANT

1. USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4. ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6. CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7. CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8. DO NOT FOLD

BELANGRIK

1. GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
2. MERK AS VOLG
3. KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4. VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5. KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6. KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7. MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8. MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	36	71	106
2	37	72	107
3	38	73	108
4	39	74	109
5	40	75	110
6	41	76	111
7	42	77	112
8	43	78	113
9	44	79	114
10	45	80	115
11	46	81	116
12	47	82	117
13	48	83	118
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27	62	97	132
28	63	98	133
29	64	99	134
30	65	100	135
31	66	101	136
32	67	102	137
33	68	103	138
34	69	104	139
35	70	105	140