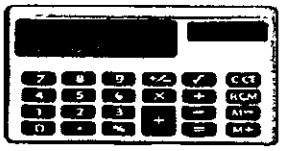
UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

PYC3704 (476225) May/June 2015

PSYCHOLOGICAL RESEARCH

Duration 2 Hours 70 Marks

EXAMINATION PANEL AS APPOINTED BY THE DEPARTMENT.

Use of a non-programmable pocket calculator is permissible

Closed book examination.

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EXAMINERS:
FIRST: **PROF P KRUGER** **PROF HC JANEKE**
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This paper consists of 18 pages plus 2 blank pages for rough work (pp 19 & 20), plus 1 page (i) of formulae and 4 pages of tables (ii-v) as well as instructions for the completion of a mark reading sheet

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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 80 and 20% of your year mark (from the assignments) will be added, to produce a mark out of 100 [Note however, that if your exam mark is less than 40% the year 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

[TURN OVER]

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

Question 1

The principal aim of psychological research is to - - - - - about human behaviour

1 conduct experiments
2 collect and analyse data
3 develop theories

Question 2

A psychologist is interested in studying the interaction between small groups of four to five people each. He makes the assumption that the interaction between such groups may be likened to the way in which governments interact with one another In order to be able to do a scientific study of this (a) - - - - - question, he would have to provide a(an) (b) - - - - - definition of the (c) - - - - - called "interaction"

1	(a) scientific	(b) experimental	(c) concept
2	(a) experimental	(b) research	(c) operational concept
3	(a) research	(b) operational	(c) construct

Consider the following scenario for questions 3 and 4:

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

Question 3

The most appropriate description of the basic research question is

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

Question 4

The dependent variable in the study above is - - - - -

1 alcohol consumption
2. motor coordination
3 university students

Question 5

Operational definitions of a psychological concept or construct are definitions which define the concept in terms of - - - - - .

1. standardized psychometric tests
2 aspects or instances of the concept which can be observed
3. latent variables

Question 6

In the case of a correlational design, the aim is to compare - - - - -

1 a sample to its population
2. two samples from different populations with one another
3 variables from a single sample

Question 7

Consider the hypothesis·

Girls have better verbal abilities than boys, and they will perform significantly better than boys on a verbal ability test

If we represent the mean of the verbal ability scores of girls with μ_{girl} and the mean of the verbal ability scores of boys with μ_{boy}, the following would be an appropriate way to state this hypothesis in a symbolic way

1 $\mu_{girl} \neq \mu_{boy}$
2. $\mu_{girl} > \mu_{boy}$
3 $\mu_{girl} < \mu_{boy}$

Question 8

Select the most appropriate definition of a psychological theory Psychological theories are - - - - -.

1 careful descriptions based on observations of human behaviour.
2. plausible statements about possible principles underlying human behaviour
3. statements which explain the relationships among observed psychological variables

Question 9

"A manic episode is a period of at least a week during which a person displays an abnormal and persistent cheerful or irritated mood" This statement - - - - -

1. is a prediction based on a psychological theory of behaviour.
2. describes the latent implications of a construct
3. serves as an operational definition of a construct

Question 10

A psychologist conducts a study in which she measures the reaction times of a team of soccer players using a psychometric test. She proceeds from the assumption that reaction time is an indication of athletic ability In this study 'athletic ability' is the - - - - - variable

1 empirical
2 latent
3 manifest

Question 11

In a study, the relationship between level of physiological arousal (high and low) and mood (measured on three levels) is investigated Suitable hypotheses for this are to be regarded as - - - - -

1. statements specifying possible ways in which the values of 'physiological arousal' could be associated with the values of 'mood'
2. procedures which make it possible to establish the values of the variables 'physiological arousal' and 'mood' by observation
3. statements about the relationships between the values of the variable 'physiological arousal' and that of 'mood' which have been validated by research

Question 12

"Empirically" means "based on - - - - -"

1 verified theories
2 sound arguments
3 natural observations

Question 13

A standardized normal distribution has a mean of - - - - - and a standard deviation of - - - - -

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

Question 14

Suppose the following sequences made up out of five random letters each are written on separate pieces of paper and placed in a box You are asked to draw one piece of paper from the box at random. What is the probability that the sequence of letters on the paper will contain ***at least one*** vowel? (I.e a letter from the sequence A, E, O, U, I)

TLDKL	OEWKX	DMWBL	VUPTG	HVWJK	NABID	AVYPR	ZWTIP	ZGNZS	BVDHD
YXZXQ	RVFPH	TRKXJ	GXALD	SSJRX	VJNSL	OYECI	XHPNG	IGHGD	MKYFD

1 0 55
2 0 25
3 0.40

Question 15

Quantities that are used to summarize aspects of measurements of variables in a population are called

1. parameters
2 constructs
3. statistics

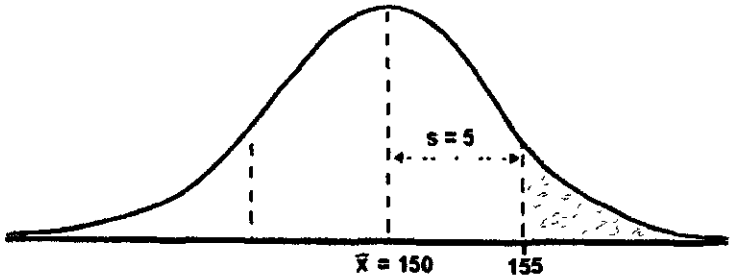
Question 16

The central limit theorem states that the - - - - -

1 sampling error of repeated measurements of a random variable will increase as the population increases
2 sampling distribution of any random variable will approach a normal distribution as *n* increases
3 sampling distribution of the mean of repeated independent samples of a random variable will approach a normal distribution as the number of samples increases

Question 17

Study the following figure representing the distribution of a variable x:



What is the probability that a specific number drawn purely at random from a variable distributed like this would fall into the grey area (i e. that it would be equal to or greater than x = 155)? Choose the answer closest to the correct one from the options below

1 0 84
2 0 16
3. 0 5

Question 18

In a population there are 450 people of whom 150 smokes What is the probability of randomly selecting a non-smoker from this population?

1. 0.67
2 0 33
3. 0 5

Question 19

The expression "0 05 ≤ p ≤ 0.10" denotes a probability value
- - - - -

1. larger than 0 05 and smaller than 0.10
2. larger than or equal to 0 10; or smaller than or equal to 0 05
3 larger than or equal to 0 05 and smaller than or equal to 0 10

Question 20

There are 12 girls and 8 boys in a specific class at school. Two children who happen to be in this same class are Tom and Elizabeth The children in the class have to choose two class representatives, one from the boys and one from the girls The children make the choice by writing the names of boys and girls on slips of paper, putting the names of boys in one box and girls' names in another, and then asking their teacher to draw one name blindly from each box. What are the chances of Tom or Elizabeth being chosen, purely at random?

1 1/12 x 1/8 = 0 01
2 1/12 + 1/8 = 0 21
3 2/20 = 0 10

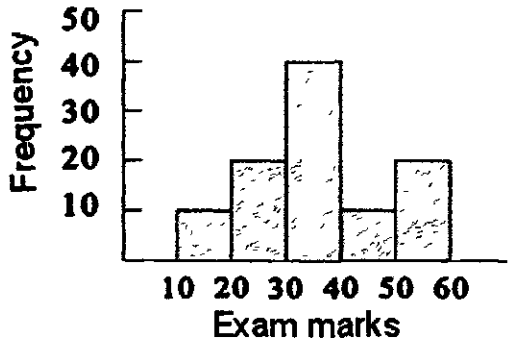
Question 21

In social science research, z scores can be used to - - - - -

1 compare scores on tests with different means and standard deviations
2 transform scores on tests with different means and standard deviations into comparable percentages
3 determine whether the measurements are normally distributed

Question 22

Study the histogram below of the exam marks of a group of students in the same class Note that the values on the horizontal axis are the upper class limits



Assume we use this histogram as a basis for making probability predictions What is the probability that a student's score will be between 40 and 60?

1. 0 5
2. 0.2
3. 0.3

Question 23

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 24

The *asymptotic* property of the normal curve refers to the fact that - - - - -.

1. the curve is symmetrical around the mean with little or no skewness
2. the endpoints of the curve get closer to the x-axis but never touch it
3. the curve forms a bell-shaped graph

Question 25

The level of significance of a statistical test - - - - -

1. is the same as the p-value
2 can be calculated from the size of the statistical test statistic
3 is specified by the researcher

Questions 26 to 28 are based on the following scenario.

Lisa is a human resource consultant and her boss asks her to test if the employees in their company have a less positive attitude towards work than the average worker in South Africa Lisa decides to use a test which measures attitude towards work in general This is a test which has been standardized to a mean score of 120 for the general population of workers and in which the higher the score is, the more positive the attitude towards work would be

Question 26

Which of the following statements translates the research hypothesis into the correct statistical hypotheses?

1. H_0. $\mu = 120$ H_1: $\mu < 120$

2 H_0: $\mu = 120$ H_1 $\mu > 120$

3 H_0: $\mu = 120$ H_1 $\mu \neq 120$

Question 27

Lisa now wants to set up her sample data Which of the following procedures should she follow?

She should draw - - - - -

1 a random sample from the general population of workers in SA
2 a random sample from population from employees in the company
3 two random samples, one from employees in the company and a second from the general population of workers in SA

Question 28

Lisa finds that the employees in her company obtained a score of 114. Which of the following statements is true about the result?

The employees in Lisa's company - - - - -

1. have a more negative attitude towards work, and it is therefore not necessary to test this statistically
2 obviously have a less positive attitude towards work than employees in the general population but the result is in the wrong direction, so it is not necessary to test this difference for significance
3. have a less positive attitude towards work than employees in other companies but Lisa will have to test this difference further to see if it is statistically significant

Question 29

Rejection of H_0 and acceptance of H_1 implies that a difference between the calculated sample mean and its expected value under H_0 is due to - - - - -

1 chance
2 the independent variable
3 sampling error

Question 30

A researcher calculates descriptive statistics for a sample of 100 research participants on an anxiety scale, and finds a mean of $\bar{x} = 120$ and a standard variation of 15. What is the probability of a particular person obtaining a score of 150 or greater on this test?

1. 0 0228
2. 1.4772
3 0 9772

Question 31

When a statistical test yields a large p-value, which of the following statements is most correct?

1 The alternative hypothesis is probably true
2. The null hypothesis is probably false
3 The null hypothesis is probably true

Question 32

The p-value is calculated on the basis of - - - - -

1 the value of the standard error
2 the value of the test statistic
3. the null hypothesis statement

Question 33

Suppose we have stated H_0: $\mu = 10$, and H_1 $\mu < 10$, and find that the sample mean corresponds to a z-score of -3 This means that the corresponding p-value is - - - - -

1 0 9987
2 0.0026
3. 0 0013

Question 34

Which one of the following alternative hypotheses requires a one-tailed test of significance?

1. The mean anxiety score for boys differs from the mean score for girls
2 The mean verbal ability score for boys is lower than the mean score for girls
3. The correlation between test marks and examination marks is not the same for boys and girls

Question 35

A researcher uses a sample of 100 attendees of a workshop to determine the effectiveness of a course of assertiveness training. She measures the level of assertiveness of these participants before and after the workshop on an appropriate 9-point scale. She finds that their level of assertiveness increased from a mean of 4 9 before the course to a mean of 5.2 afterwards Based on a t-test for dependent samples she determines that this increase is significant on a 5% level of significance. She is however uncertain whether an increase from 4 9 to 5 2 is really of much practical importance, in spite of the statistical significance A good strategy to get a better idea of the usefulness of the result would be to calculate the - - - - -.

1 correlation coefficient
2 effect size
3 power of the test

Question 36

To make sure that a null hypothesis is not rejected by mistake, a researcher decides to decrease the level of significance of a statistical test from the conventional value of 0.05 to a smaller value of α = 0 001 What would the effect of such a decrease in the chosen value of α be on the probability of making an error of ***Type II***? The probability of an error of Type II will - - - - -

1 decrease
2 increase
3 not be affected

Question 37

Suppose you find that the value of the z_c-statistic calculated for your research results is zero Which conclusion is appropriate?

1 The null hypothesis should be rejected
2 The null hypothesis is likely to be true
3 The alternative hypothesis is likely to be true

Question 38

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 39

When a statistical test yields a small p-value, which of the following statements is most correct?

1 The alternative hypothesis is probably false
2 The null hypothesis is probably true.
3 The null hypothesis is probably false.

Questions 40 to 42 are based on the following scenario:

An educational psychologist investigates whether a series of special interactive exercises presented on a computer will improve the performance of pupils in mathematics. A group of 100 pupils are selected at random from a number of schools to receive the computer-aided mathematics exercises The researcher uses a general test for mathematics which has been standardized to a mean score of 50 and a standard deviation of 16 to test each of the pupils in the sample after they have completed the computer-aided mathematics exercises

Question 40

Which of the following statements translates the research hypothesis into the correct statistical hypotheses?

1. H_0 $\mu = 50$
   H_1 $\mu < 50$

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

3. H_0 $\mu = 50$
   H_1 $\mu \neq 50$

Question 41

Based in the information in this scenario (above), what is the value of the standard error of the mean?

1 1.60
2 0 16
3. 16

Question 42

The researcher finds that the learners who completed the computer-aided exercises obtain a mean mathematics score of 55 when they are tested. What is the *most appropriate* statistical test in the options listed below which should be used to determine whether this mark differs significantly from that of learners in general, as specified in the research scenario above?

1. A t-test of a single sample mean
2. A z-test of a single sample mean
3 A t-test of two sample means

Question 43

The null hypothesis is not rejected if - - - - -.

1. the p-value under H_0 is not smaller than the level of significance
2 the p-value under H_1 is larger than the level of significance
3. the p-value under H_0 is smaller than the level of significance

Question 44

What can a researcher do while performing statistical analysis of data to limit the risk of a Type I error?

1 Increase the sample size
2 Decrease sampling error, measurement error, etc
3 Set a smaller level of significance

Question 45

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

1 cannot accept
2. do not reject
3 reject

Question 46

A researcher wants to determine the effect of sleep deprivation on attention span She decides to make use of a test for attention span which had been standardized for the general population to a mean of 50 and a standard deviation of 12 She uses the test on a sample of 100 research participants who were kept awake for 24 hours The test yields a sample mean of 42 with a sample standard deviation of 23 By using the central limit theorem, she can infer that the mean of the sampling distribution of the mean for this particular test would be - - - - - and the standard deviation of the sampling distribution of the mean would be - - - - -

1 50; 1 2
2 42, 2 3
3 50, 12

Question 47

When comparing a sample mean with a known population mean, a researcher would use a t-test rather than a z-test when the population standard - - - - -.

1 error is known
2 deviation is known
3 deviation is unknown

Question 48

Consider the following statistical hypothesis·

H_0 $\mu = 120$ H_1 $\mu > 120$

If s = 25 and n = 64, what is the value of $s_{\bar{x}}$?

1 0.625
2 3 125
3 0.391

Question 49

Suppose the appropriate p-value of a test statistic is 0.03. What decision should the researcher make?

1 Reject H_0 if the level of significance was set in advance at 0.01.
2. Since p = 0 03, set the level of significance at 0 05
3 Reject H_0 if the level of significance was set in advance at 0.04

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 0.0250
2. 0 0173
3. 0 0690

Question 51

A researcher wants to test the hypothesis that boys are generally more aggressive than girls. He draws a sample of 100 boys and a sample of 100 girls, taking care that the age groups and socio-economic backgrounds of the groups are similar by stratification. After this, he gives each child a test that measures their general level of aggression Which would be the most appropriate statistical test to use, out of the following?

1. The t-test for independent samples
2 The chi-square test
3 The t-test for dependent samples

Question 52

A researcher plans to use the t-test to compare two independent samples of data of only 15 individuals each What minimum assumption needs to be met before she may proceed?

1 the sample standard deviations have to be equal
2 the data from both samples have to come from populations that are normally distributed
3 both of the above

Question 53

Cohen's d refers to the - - - - -.

1. difference score calculated when two means from dependent samples are compared
2. effect size used to determine the practical importance of a statistical effect
3 power of a statistical test which indicates its sensitivity

Question 54

A research design which makes use of dependent samples can also be referred to as a - - - - - design

1 matched-pairs
2 correlational
3 two-groups

Question 55

A researcher is comparing the following hypotheses:

H_0. $\mu_1 = \mu_2$
H_1. $\mu_1 > \mu_2$

Her results derived from a random sample shows that the mean sample score for the first group is less than the mean sample score for group two (i e $\bar{x}_1 < \bar{x}_2$) What may she conclude?

1 she needs to calculate the relevant p-value before making a conclusion
2 she can reject H_0
3 she cannot reject H_0

Question 56

A researcher plans to compare a group of male students with a group of female students on a test that measures problem-solving style Which is the independent variable?

1 gender
2 problem-solving style
3 students

Question 57

A researcher wants to test the following hypotheses

H_0 $\mu_1 = \mu_2$
H_1. $\mu_1 \neq \mu_2$

On the basis of data provided, the output from a computer programme indicates that a t-value of t = -1 9 was found, with the p-value for a two-tailed test given as p=0.07 What should the researcher do to evaluate this result?

1 Compare the computed p-value as given with the pre-selected level of significance
2. Divide 0.07 with 2 before comparing it with the pre-selected level of significance
3 Multiply 0 07 by 2 before comparing it with the pre-selected level of significance

Question 58

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

1. The variables represent scores from research participants on a motivational scale, who were tested before and after listening to a presentation by a motivational speaker
2 The variables are exam scores of children from two schools, with demographic criteria like grade, gender and age used to make sure the samples are comparable
3 The scores on neither of the above examples may be regarded as independent

Question 59

A researcher wants to compare the percentage of persons who have been victims of crime from urban areas with the percentage of crime victims from semi-urban areas and the percentage of crime victims from rural areas Which of the following is the most appropriate test statistic to use?

1 the chi-square test statistic (χ^2)
2 the t-test statistic for independent samples (t_c)
3 the test statistic for a Pearson correlation coefficient (r)

Question 60

The difference score indicating differences between each pair of results in two samples ($d = X_2 - X_1$) is used in the calculation of the test statistic in the case of - - - - -

1. the t-test for independent samples
2 the t-test for dependent samples
3 the Pearson correlation coefficient

Question 61

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 62

The use of the t-test to compare the means of data from two samples is appropriate when - - - - -

(a) the samples come from populations that are normally distributed
(b) the sample sizes are large

1 (b) but not (a)
2 (a) but not (b)
3 (a) or (b)

Question 63

Which is the appropriate test statistic to use to determine whether a linear relationship exists between two random variables?

1 t-test
2 chi-square (χ^2) test
3 Pearson's r test statistic

Question 64

A contingency table is used to summarize the relationship between two variables measured on at least ----- scale

1 a nominal
2 an ordinal
3 an interval or ratio

Question 65

A Pearson correlation of r = – 0 72 is found. What kind of relationship between two variables X and Y does this represent?

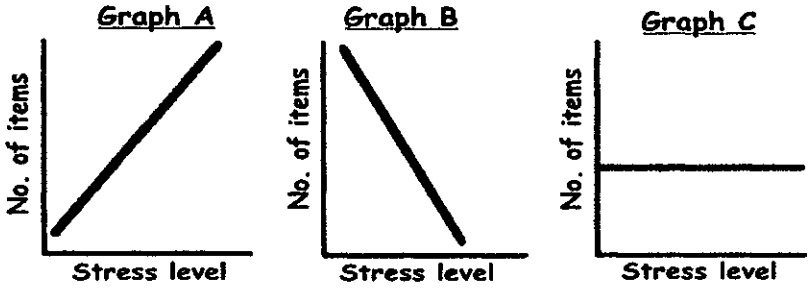
1. as one variable grows larger, so does the other get larger
2. as one variable grows smaller, so does the other get smaller
3. as one variable grows larger, the other grows smaller

Base your answers to Questions 66 and 67 on the following scenario.

A researcher believes that stress level interferes with people's ability to remember. She gives a list of items to be memorized to a sample of research participants After they were given a set amount of time to memorize the list, each participant's stress level is measured (on a scale where a larger number implies a higher level of stress), and a note is made of the number of items they remember correctly

Question 66

If her expectations are correct, which one of the following graphs is most likely to represent her findings?



1 Graph A
2 Graph B
3 Graph C

Question 67

The researcher wants to test for the significance of the correlation between stress level and number of items remembered (in the scenario above) Which of following formulations of the alternative hypothesis would reflect the relationship between level of stress and memory if her suspicion about the relationship is true?

1 H1. $\rho > 0$
2 H1 $\rho \neq 0$
3 H1: $\rho < 0$

Question 68

A researcher wants to establish whether a relationship exists between people's political affiliation (that is, which party they are likely to support in an election out of a list of options) and whether they are in favour of or against the death penalty Which of the following 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

What is the *expected value* for the cell indicating 'rural males' in the following contingency table, if in fact no relation exists between gender and whether a person comes from a rural or urban area?

[Clue Note that this would be needed if one were to calculate the chi-square (χ^2) test statistic]

	Male	Female	**Row total**
Urban	4	8	**12**
Rural	2	4	**6**
Column total	**6**	**12**	**18**

1. 4
2. 2
3 8

Question 70

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

[TOTAL: 70]

END OF EXAM PAPER

List of formulae:

$$\frac{\bar{x}-\mu_{\bar{x}}}{\sigma_{\bar{x}}}=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

$$\frac{(\bar{x}-\mu)}{s_{\bar{x}}}=\frac{\bar{x}-\mu}{\frac{s}{\sqrt{n}}}$$

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

$$\frac{\bar{d}-\bar{D}}{s_{\bar{d}}/\sqrt{n}}=\frac{\bar{d}}{s_{\bar{d}}/\sqrt{n}} \qquad (if\ \bar{D}=0)$$

$$\frac{cov(xy)}{\sqrt{var(x)var(y)}}=\frac{n\Sigma xy-(\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2-(\Sigma x)^2][n\Sigma y^2-(\Sigma y)^2]}}$$

$$\sum_{ij}\frac{(O_{ij}-E_{ij})^2}{E_{ij}}$$

$$\frac{x-\bar{x}}{s} \quad or \quad \frac{x-\mu}{\sigma}$$

$$\sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$$

$$\frac{\bar{x}_1-\bar{x}_2}{s_p}$$

Appendix: Probabilities associated with the standard normal distribution (z)

z	Mean to z	Larger portion	Smaller portion	z	Mean to z	Larger portion	Smaller portion
0 00	0.0000	0.5000	0.5000	0.51	0.1950	0.6950	0.3050
0.01	0.0040	0.5040	0 4960	0.52	0 1985	0.6985	0.3015
0.02	0.0080	0.5080	0.4920	0.53	0 2019	0.7019	0.2981
0.03	0.0120	0.5120	0.4880	0.54	0.2054	0.7054	0.2946
0.04	0.0160	0.5160	0.4840	0.55	0.2088	0.7088	0.2912
0.05	0.0199	0.5199	0.4801	0.56	0.2123	0.7123	0.2877
0.06	0.0239	0.5239	0.4761	0.57	0.2157	0.7157	0.2843
0.07	0.0279	0.5279	0.4721	0.58	0.2190	0.7190	0.2810
0.08	0.0319	0.5319	0.4681	0.59	0.2224	0.7224	0.2776
0.09	0.0359	0.5359	0.4641	0.60	0.2257	0.7257	0.2743
0.10	0.0398	0.5398	0.4602	0.61	0.2291	0 7291	0.2709
0.11	0.0438	0.5438	0.4562	0.62	0.2324	0.7324	0.2676
0.12	0.0478	0.5478	0.4522	0.63	0.2357	0.7357	0.2643
0.13	0.0517	0.5517	0.4483	0.64	0.2389	0.7389	0.2611
0.14	0.0557	0.5557	0.4443	0.65	0.2422	0.7422	0.2578
0.15	0.0596	0.5596	0.4404	0.66	0.2454	0.7454	0.2546
0.16	0.0636	0.5636	0.4364	0.67	0.2486	0.7486	0.2514
0.17	0.0675	0.5675	0.4325	0.68	0.2517	0.7517	0.2483
0.18	0.0714	0.5714	0.4286	0.69	0.2549	0.7549	0.2451
0.19	0.0753	0.5753	0.4247	0.70	0.2580	0.7580	0.2420
0.20	0.0793	0.5793	0.4207	0.71	0.2611	0.7611	0.2389
0.21	0.0832	0.5832	0.4168	0.72	0.2642	0.7642	0.2358
0.22	0.0871	0.5871	0.4129	0.73	0.2673	0.7673	0.2327
0.23	0.0910	0.5910	0.4090	0.74	0.2704	0.7704	0.2296
0.24	0.0948	0.5948	0.4052	0.75	0.2734	0.7734	0.2266
0.25	0.0987	0.5987	0.4013	0.76	0.2764	0.7764	0.2236
0.26	0.1026	0.6026	0.3974	0.77	0.2794	0.7794	0.2206
0.27	0.1064	0.6064	0.3936	0.78	0.2823	0.7823	0.2177
0.28	0.1103	0.6103	0.3897	0.79	0 2852	0.7852	0.2148
0.29	0.1141	0.6141	0.3859	0.80	0.2881	0.7881	0.2119
0.30	0.1179	0.6179	0.3821	0.81	0.2910	0.7910	0.2090
0.31	0.1217	0.6217	0.3783	0.82	0.2939	0.7939	0.2061
0.32	0.1255	0.6255	0.3745	0.83	0.2967	0.7967	0.2033
0.33	0.1293	0.6293	0.3707	0.84	0.2995	0.7995	0.2005
0.34	0.1331	0.6331	0.3669	0.85	0.3023	0.8023	0.1977
0.35	0.1368	0.6368	0.3632	0.86	0.3051	0.8051	0.1949
0.36	0.1406	0.6406	0.3594	0.87	0.3078	0.8078	0.1922
0.37	0.1443	0.6443	0.3557	0.88	0.3106	0.8106	0.1894
0.38	0.1480	0.6480	0.3520	0.89	0.3133	0.8133	0.1867
0.39	0.1517	0.6517	0.3483	0.90	0.3159	0.8159	0.1841
0.40	0.1554	0.6554	0.3446	0.91	0.3186	0.8186	0.1814
0.41	0.1591	0.6591	0.3409	0.92	0.3212	0.8212	0.1788
0.42	0.1628	0.6628	0.3372	0.93	0.3238	0.8238	0.1762
0.43	0.1664	0.6664	0.3336	0.94	0.3264	0.8264	0.1736
0.44	0.1700	0.6700	0.3300	0.95	0.3289	0.8289	0.1711
0.45	0.1736	0.6736	0.3264	0.96	0.3315	0.8315	0.1685
0.46	0.1772	0.6772	0.3228	0.97	0.3340	0.8340	0.1660
0.47	0.1808	0.6808	0.3192	0.98	0.3365	0.8365	0.1635
0.48	0.1844	0.6844	0.3156	0.99	0 3389	0.8389	0.1611
0.49	0.1879	0.6879	0.3121	1.00	0.3413	0.8413	0.1587
0.50	0.1915	0.6915	0.3085	1.01	0.3438	0.8438	0.1562

Appendix: Probabilities associated with the standard normal distribution (z) continued

z	Mean to z	Larger portion	Smaller portion	z	Mean to z	Larger portion	Smaller portion
1.02	0.3461	0.8461	0.1539	1.53	0.4370	0.9370	0.0630
1.03	0.3485	0.8485	0.1515	1.54	0.4382	0.9382	0.0618
1.04	0.3508	0.8508	0.1492	1.55	0.4394	0.9394	0.0606
1.05	0.3531	0.8531	0.1469	1.56	0.4406	0.9406	0.0594
1.06	0.3554	0.8554	0.1446	1.57	0.4418	0.9418	0.0582
1.07	0.3577	0.8577	0.1423	1.58	0.4429	0.9429	0.0571
1.08	0.3599	0.8599	0.1401	1.59	0.4441	0.9441	0.0559
1.09	0 3621	0.8621	0.1379	1.60	0.4452	0.9452	0.0548
1.10	0 3643	0 8643	0.1357	1.61	0.4463	0.9463	0.0537
1.11	0.3665	0.8665	0.1335	1.62	0.4474	0.9474	0.0526
1.12	0.3686	0.8686	0.1314	1.63	0.4484	0.9484	0.0516
1.13	0.3708	0.8708	0.1292	1.64	0.4495	0.9495	0.0505
1.14	0.3729	0.8729	0.1271	1.65	0.4505	0.9505	0.0495
1.15	0.3749	0.8749	0.1251	1.66	0.4515	0.9515	0.0485
1.16	0.3770	0.8770	0.1230	1.67	0.4525	0.9525	0.0475
1.17	0.3790	0.8790	0.1210	1.68	0.4535	0.9535	0.0465
1.18	0.3810	0.8810	0.1190	1.69	0.4545	0.9545	0.0455
1.19	0.3830	0.8830	0.1170	1.70	0.4554	0.9554	0.0446
1.20	0.3849	0.8849	0.1151	1.71	0.4564	0.9564	0.0436
1.21	0.3869	0.8869	0.1131	1.72	0.4573	0.9573	0.0427
1.22	0.3888	0.8888	0.1112	1.73	0.4582	0.9582	0.0418
1.23	0.3907	0.8907	0.1093	1.74	0.4591	0.9591	0 0409
1.24	0.3925	0.8925	0.1075	1.75	0.4599	0.9599	0.0401
1.25	0.3944	0.8944	0.1056	1.76	0.4608	0.9608	0.0392
1.26	0.3962	0.8962	0.1038	1.77	0.4616	0.9616	0 0384
1.27	0.3980	0.8980	0.1020	1.78	0.4625	0.9625	0.0375
1.28	0.3997	0.8997	0.1003	1.79	0.4633	0.9633	0.0367
1.29	0.4015	0.9015	0.0985	1.80	0.4641	0.9641	0.0359
1.30	0.4032	0.9032	0.0968	1.81	0.4649	0.9649	0.0351
1.31	0.4049	0.9049	0.0951	1.82	0.4656	0.9656	0.0344
1.32	0.4066	0.9066	0.0934	1.83	0.4664	0.9664	0.0336
1.33	0.4082	0.9082	0.0918	1.84	0.4671	0.9671	0 0329
1.34	0.4099	0.9099	0.0901	1.85	0.4678	0.9678	0.0322
1.35	0.4115	0.9115	0.0885	1.86	0.4686	0.9686	0.0314
1.36	0.4131	0.9131	0.0869	1.87	0.4693	0.9693	0.0307
1.37	0.4147	0 9147	0.0853	1.88	0.4699	0.9699	0 0301
1.38	0.4162	0.9162	0.0838	1.89	0.4706	0.9706	0.0294
1.39	0.4177	0.9177	0.0823	1.90	0.4713	0.9713	0.0287
1.40	0.4192	0.9192	0.0808	1.91	0.4719	0.9719	0.0281
1.41	0.4207	0.9207	0.0793	1.92	0.4726	0.9726	0.0274
1.42	0.4222	0.9222	0.0778	1.93	0.4732	0.9732	0.0268
1.43	0.4236	0.9236	0.0764	1.94	0 4738	0.9738	0.0262
1.44	0.4251	0.9251	0.0749	1.95	0.4744	0.9744	0.0256
1.45	0.4265	0.9265	0.0735	1.96	0.4750	0.9750	0.0250
1.46	0 4279	0.9279	0.0721	1.97	0 4756	0.9756	0 0244
1.47	0.4292	0.9292	0.0708	1.98	0.4761	0.9761	0.0239
1.48	0.4306	0.9306	0.0694	1.99	0.4767	0.9767	0.0233
1.49	0.4319	0.9319	0.0681	2.00	0.4772	0.9772	0.0228
1.50	0.4332	0.9332	0.0668	2.01	0.4778	0.9778	0.0222
1.51	0.4345	0.9345	0.0655	2.02	0.4783	0.9783	0.0217
1.52	0.4357	0.9357	0.0643	2.03	0.4788	0.9788	0.0212

Appendix: Probabilities associated with the standard normal distribution (z) continued

z	Mean to z	Larger portion	Smaller portion	z	Mean to z	Larger portion	Smaller portion
2.04	0.4793	0.9793	0.0207	2.55	0.4946	0.9946	0.0054
2.05	0.4798	0.9798	0.0202	2.56	0.4948	0.9948	0.0052
2.06	0.4803	0.9803	0.0197	2.57	0.4949	0 9949	0.0051
2.07	0.4808	0.9808	0.0192	2.58	0.4951	0.9951	0.0049
2.08	0.4812	0.9812	0.0188	2.59	0.4952	0.9952	0.0048
2 09	0.4817	0.9817	0.0183	2.60	0.4953	0.9953	0.0047
2.10	0.4821	0.9821	0.0179	2 61	0.4955	0.9955	0.0045
2.11	0.4826	0.9826	0.0174	2.62	0.4956	0.9956	0.0044
2.12	0.4830	0.9830	0.0170	2.63	0.4957	0.9957	0.0043
2.13	0.4834	0.9834	0.0166	2.64	0 4959	0.9959	0.0041
2.14	0.4838	0.9838	0.0162	2.65	0.4960	0.9960	0.0040
2.15	0.4842	0.9842	0.0158	2.66	0.4961	0.9961	0.0039
2.16	0.4846	0.9846	0.0154	2.67	0.4962	0.9962	0.0038
2.17	0.4850	0.9850	0.0150	2.68	0.4963	0.9963	0.0037
2.18	0.4854	0.9854	0.0146	2.69	0.4964	0.9964	0.0036
2.19	0.4857	0.9857	0.0143	2.70	0.4965	0.9965	0.0035
2.20	0.4861	0.9861	0.0139	2.71	0.4966	0.9966	0.0034
2.21	0.4864	0.9864	0.0136	2.72	0.4967	0.9967	0.0033
2.22	0.4868	0.9868	0.0132	2.73	0.4968	0.9968	0.0032
2.23	0.4871	0.9871	0.0129	2.74	0.4969	0.9969	0.0031
2.24	0.4875	0.9875	0.0125	2.75	0.4970	0.9970	0.0030
2.25	0.4878	0.9878	0.0122	2.76	0.4971	0.9971	0.0029
2.26	0.4881	0.9881	0.0119	2.77	0.4972	0 9972	0.0028
2.27	0.4884	0.9884	0.0116	2.78	0.4973	0 9973	0.0027
2.28	0.4887	0.9887	0.0113	2.79	0.4974	0.9974	0.0026
2.29	0 4890	0.9890	0.0110	2.80	0.4974	0 9974	0.0026
2.30	0.4893	0.9893	0.0107	2.81	0.4975	0.9975	0.0025
2.31	0.4896	0.9896	0.0104	2.82	0.4976	0.9976	0.0024
2.32	0.4898	0.9898	0.0102	2.83	0.4977	0.9977	0.0023
2.33	0.4901	0.9901	0.0099	2.84	0.4977	0.9977	0.0023
2.34	0.4904	0.9904	0.0096	2.85	0.4978	0.9978	0.0022
2.35	0.4906	0.9906	0.0094	2.86	0.4979	0.9979	0.0021
2.36	0.4909	0.9909	0.0091	2.87	0.4979	0.9979	0.0021
2.37	0.4911	0.9911	0.0089	2.88	0.4980	0.9980	0.0020
2.38	0.4913	0 9913	0.0087	2.89	0.4981	0.9981	0.0019
2.39	0.4916	0.9916	0.0084	2.90	0.4981	0.9981	0.0019
2.40	0.4918	0.9918	0.0082	2.91	0.4982	0.9982	0.0018
2.41	0.4920	0.9920	0.0080	2.92	0.4982	0.9982	0.0018
2.42	0.4922	0.9922	0.0078	2.93	0.4983	0 9983	0.0017
2.43	0.4925	0.9925	0.0075	2.94	0.4984	0.9984	0.0016
2.44	0.4927	0.9927	0.0073	2.95	0.4984	0.9984	0.0016
2.45	0.4929	0.9929	0.0071	2.96	0.4985	0.9985	0.0015
2.46	0.4931	0.9931	0.0069	2.97	0 4985	0.9985	0.0015
2.47	0.4932	0.9932	0.0068	2.98	0.4986	0.9986	0.0014
2.48	0.4934	0.9934	0.0066	2.99	0.4986	0.9986	0.0014
2.49	0.4936	0 9936	0.0064	3.00	0.4987	0.9987	0.0013
2.50	0.4938	0.9938	0.0062	3.01	0.4987	0.9987	0.0013
2.51	0.4940	0.9940	0.0060	3.02	0.4987	0.9987	0.0013
2.52	0 4941	0.9941	0.0059	3.03	0.4988	0.9988	0.0012
2.53	0.4943	0.9943	0.0057	3.04	0.4988	0.9988	0.0012
2.54	0.4945	0.9945	0.0055	3.05	0.4989	0.9989	0.0011

Appendix: Probabilities associated with the standard normal distribution (z) continued

z	Mean to z	Larger portion	Smaller portion	z	Mean to z	Larger portion	Smaller portion
3.06	0.4989	0.9989	0.0011	3.19	0.4993	0.9993	0.0007
3.07	0.4989	0.9989	0.0011	3.20	0.4993	0.9993	0.0007
3.08	0.4990	0.9990	0.0010	3.21	0.4993	0.9993	0.0007
3.09	0.4990	0.9990	0.0010	3.22	0.4994	0.9994	0.0006
3.10	0.4990	0.9990	0.0010	3.23	0.4994	0.9994	0.0006
3.11	0.4991	0.9991	0.0009	3.24	0.4994	0.9994	0.0006
3.12	0.4991	0.9991	0.0009	3.25	0.4994	0.9994	0.0006
3.13	0.4991	0.9991	0.0009	...	...	...	...
3.14	0.4992	0.9992	0.0008	3.50	0.4998	0.9998	0.0002
3.15	0.4992	0.9992	0.0008	...	...	...	...
3.16	0.4992	0.9992	0.0008	3.75	0.4999	0.9999	0.0001
3.17	0.4992	0.9992	0.0008	...	...	...	...
3.18	0.4993	0.9993	0.0007	4.00	0.5000	1.000	0.0000

UNIVERSITY OF SOUTH AFRICA UNISA UNIVERSITEIT VAN SUID-AFRIKA

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	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5