

**PYC3704**

(469667)

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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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This paper consists of 19 pages plus 2 blank pages for rough work (pp 20 & 21) plus 1 page (i) of formulae and tables(ii-v) as well as instructions for the completion of a mark reading sheet

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 exam 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

[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 entire collection of cases that you are interested in when you do research is referred to as the - - - - -

- 1 population
- 2 range
- 3 sample
- 4 data

Question 2

Mean, range, variance and standard deviation are examples of - - - - -

- 1 variables
- 2 descriptive statistics
- 3 test statistics
- 4 inferential statistics

Question 3

Quantities that summarises aspects of a population are called (a) - - - - -, while (b) - - - - - do the same for samples

- 1 (a) statistics (b) parameters
- 2 (a) parameters (b) statistics
- 3 (a) constructs (b) variables
- 4 (a) variables (b) parameters

Question 4

The process of selecting a subset of a population for a survey is known as - - - - -

- 1 survey research
- 2 triangulation
- 3 sampling
- 4 operationalisation

Question 5

An inference is - - - - -

- 1 an explanation of why certain things are as they are observed to be
- 2 an educated guess about how certain phenomena may be interrelated
- 3 a generalisation from a specific situation to the phenomenon in general, which have a high probability of being true
- 4 a conclusion which follows logically from certain premises and which must be true if the premises are true

[TURN OVER]

Question 6

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

- 1 theory
- 2 statistical arguments
- 3 observations
- 4 facts

Question 7

Which of the following best describes "latent"?

- 1 observable
- 2 manifest
- 3 hidden
- 4 independent

Question 8

A psychologist has a theory that visual perceptual ability influences the marks that learners will get in a mathematics test. In this example, 'visual perceptual ability' is the - - - - - variable

- 1 dependent
- 2 independent
- 3 manifest
- 4 hidden

Question 9

An operationally defined variable is - - - - -

- 1 abstract
- 2 latent
- 3 independent
- 4 observable

Question 10

A psychologist is interested in studying the interaction between small groups of four to five people in each group. He suspects that the interactions between such groups can be described in similar terms to the interactions between individual persons. In order to be able to do a scientific study of this (a) - - - - - question, he would have to provide a(n) (b) - - - - - definition of the (c) - - - - - called "interaction"

- | | | | |
|---|------------------|------------------|---------------|
| 1 | (a) research | (b) operational | (c) construct |
| 2 | (a) scientific | (b) experimental | (c) concept |
| 3 | (a) experimental | (b) research | (c) statistic |
| 4 | (a) hypothetical | (b) empirical | (c) parameter |

[TURN OVER]

Question 11

The variable manipulated by a researcher in an experiment is called the - - - - variable

- 1 hypothetical
- 2 independent
- 3 dependent
- 4 empirical

Question 12

Which one of the definitions below is *FALSE*?

- 1 The term construct is used to refer to a concept which is of importance in psychological research
- 2 Measurement is a process whereby numbers are allocated to a construct according to a rule
- 3 When a psychological variable is measured, the result is referred to as a statistic
- 4 When a construct is measured, the resulting quantity is referred to as a variable

Question 13

Summary statistics that are used to summarize information about a population are called - - - -

- 1 parameters
- 2 inferential statistics
- 3 samples
- 4 descriptive statistics

Question 14

A frequency distribution of the ages in months of a class of Grade 1 children indicates for each age in months what the corresponding - - - - is

- 1 variable
- 2 number of children of that age
- 3 z-score
- 4 probability

[TURN OVER]

Question 15

A researcher investigating short term memory reads a list of ten three-digit numbers to a group of 100 research participants. Each participant is then asked to write down as many of the numbers as they can recall. The frequency table below shows the count of persons who can correctly recall a specific number of three-digit numbers from the list.

Number of items remembered	1	2	3	4	5	6	7	8	9	10
Frequency	0	4	11	13	22	18	17	9	6	0

Using this table as a basis, estimate the probability that a specific person will remember nine or more three-digit numbers.

- 1 0.06
- 2 0
- 3 94%
- 4 0.15

Question 16

Two class representatives, one boy and one girl, must be selected from a class of 10 boys and 8 girls, which includes Mary and her friend John. The teacher writes the names of all the children on slips of paper. She first puts the girls' names into a box and then draws one of their names blindly. Then she empties the box and puts the names of all the boys inside, and one name is again drawn blindly.

What is the probability that Mary and John will both be selected?

- 1 2/80
- 2 0.0125
- 3 0.225
- 4 2/18

Base your answers to Questions 17 and 18 on the following information:

Suppose the weights of the population of military recruits are distributed normally with a mean of 64 kg and a standard deviation of 8 kg. Different samples of these recruits, each with a sample size of 16, are drawn repeatedly.

Question 17

We expect the standard deviation of the sample means to be about - - - - kg.

- 1 2
- 2 3
- 3 4
- 4 8

[TURN OVER]

Question 18

We expect the mean of the sample means to be about - - - - - kg

- 1 52
- 2 72
- 3 64
- 4 62

Base your answers to Questions 19 and 20 on the information in the table below:

Subject	Student X	Mean of class	Standard deviation of class
A	50%	46%	2%
B	55%	50%	4%
C	60%	50%	6%
D	66%	65%	3%

Question 19

In which subject did Student X do best, relative to his class?

- 1 A
- 2 C
- 3 D
- 4 B

Question 20

What is the probability of getting a score of 66% or more in subject D?

- 1 0.33
- 2 0.13
- 3 0.63
- 4 0.37

Question 21

A z-score is conventionally used to refer to a variable from which probability distribution?

- 1 Any normal distribution
- 2 The binomial distribution
- 3 The even distribution
- 4 The standardized normal distribution

Question 22

The total area under the standard normal curve equals - - - - -

- 1 its mean
- 2 its standard deviation
- 3 the z-score
- 4 one

[TURN OVER]

Question 23

The mean and standard deviation of a set of test scores are 20 and 8 respectively. If the z-score which corresponds to a test score of 14 is calculated, in which of the intervals listed below would it fall?

- 1 Smaller than -1.0
- 2 Between -1.0 and 0
- 3 Between 0 and 1.0
- 4 Larger than 1.0

Question 24

Why is the *central limit theorem* of importance in inferential statistics? It - - - - -

- 1 informs us how sampling error will increase as the population increases
- 2 tells us that sampling error will begin to approximate a normal distribution as samples grow larger
- 3 shows that the sampling distributions of certain sampling statistics will approach a normal distribution as the sample sizes increase
- 4 can be used to convert any measurement into an equivalent z-score

Question 25

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

- 1 the curve is bell-shaped
- 2 the endpoints of the curve get continuously closer to the x-axis without ever touching it
- 3 the curve has a standardised variance
- 4 the curve is symmetrical

Question 26

The *standard error* is a measurement of - - - - -

- 1 how well a sample mean approximates a population mean
- 2 the extent to which a variable varies around its mean
- 3 the extent to which one variable changes as another one changes
- 4 the size of the error being made when you fail to reject a null hypothesis which is actually false

Question 27

Statistical hypotheses are statements about - - - - -

- 1 population parameters
- 2 sample statistics
- 3 characteristics of statistical distributions
- 4 all of the above

[TURN OVER]

Question 28

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 - - - - -

- 1 need not be found to reach a decision
- 2 is 0.0026
- 3 is 0.0013
- 4 can only be calculated if the sample standard deviation is known

Question 29

The hypothesis " $H_1: \mu > 50$ " is a (a) - - - - - hypothesis and requires a (b) - - - - - statistical test

- 1 (a) non-directional (b) one-tailed
- 2 (a) directional (b) two-tailed
- 3 (a) non-directional (b) two-tailed
- 4 (a) directional (b) one-tailed

Question 30

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

- 1 refers to the p-value which is calculated from the test statistic
- 2 indicates the maximum risk that a researcher is willing to take of making an error of Type I
- 3 is the probability of obtaining the sample statistic under the null hypothesis
- 4 is used to indicate the probability of making an error by not rejecting the null hypothesis

Question 31

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
- 4 cannot make a conclusion about

Question 32

A type II error occurs when - - - - -

- 1 the null hypothesis is rejected when it should not be rejected
- 2 the null hypothesis is not rejected when it should be rejected
- 3 the null hypothesis is wrongly not rejected
- 4 the alternative hypothesis not accepted when it should be accepted

[TURN OVER]

Base your answers to Questions 33 to 37 on the following scenario:

Rose is interested in the problem of depth perception. She wonders whether artists who practise visual arts, and who are known to have made a study of the problem of perspective, would be better at judging depth than people in general. She decides to investigate this using a test for depth perception which was standardized on the general population with a mean of 5, where a greater number implies better depth perception on a scale of 1 to 9. She randomly draws 100 students who had graduated from a class on perspective at a school for fine arts and tests each of them on the depth perception test. She finds that the mean depth perception score of her sample is 6.2 and the sample standard deviation is 1.7.

Question 33

How would you describe the population investigated in this research?

- 1 The general population
- 2 Artists who studied perspective
- 3 Artists who had studied perspective at a specific school for fine arts
- 4 Artists who had completed the test for depth perception

Question 34

Which of the following best describes the research or theoretical hypothesis to be tested?

- 1 Depth perception is related to artistic ability
- 2 Visual artists have a superior ability for depth perception to people in general
- 3 Students from the school of visual arts have better depth perception than the general population
- 4 The relationship between depth perception and artistic ability is statistically significant

Question 35

Which of the following are appropriate null and alternative hypotheses?

- 1 $H_0: \mu = 5, H_1: \mu < 5$
- 2 $H_0: \mu = 5, H_1: \mu \neq 5$
- 3 $H_0: \mu = 5, H_1: \mu > 5$
- 4 $H_0: \mu \neq 5, H_1: \mu > 5$

Question 36

Which is the correct value of the standard deviation of the sampling distribution of the mean of the depth perception scores?

- 1 1.7
- 2 2.0
- 3 0.017
- 4 0.17

[TURN OVER]

Question 37

Which is the appropriate test statistic to calculate?

- 1 The t-statistic for the difference between the means of two independent groups
- 2 The t-statistic for the mean of a single group
- 3 The z-statistic for the mean of a single group
- 4 The t-statistic for the difference between the means of two dependent groups

Question 38

When two population means are compared, the p-value is calculated to represent the probability of observing a specific difference between the sample means given that - - - - -

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

Question 39

A psychologically unimportant result may turn out to be statistically significant if the researcher - - - - -

- 1 sets a low level of significance
- 2 uses a large sample
- 3 reduces the probability of a type I error
- 4 changes the effect size

Question 40

The mean score of a sample of research participants is compared with a population mean of 20 for a particular questionnaire which measures anxiety level. The following hypothesis is set up to be tested

$$H_0: \mu = 20$$
$$H_1: \mu \neq 20$$

A researcher draws a random sample of 25 persons and calculates the mean score and the standard deviation of this sample. This is used to calculate a t_x test statistic to test the hypothesis at a significance level of $\alpha = 0.01$. If a p-value of $p = 0.036$ is found, which of the following statements about the mean which was calculated from this sample is most likely to be true?

- 1 It is close to 20
- 2 It differs significantly from 20
- 3 It is definitely not equal to 20
- 4 There is not sufficient information given to estimate it

[TURN OVER]

Question 41

When two means are compared, the p-value expresses the probability that a difference between the means

- 1 will be significant
- 2 is due to the alternative hypothesis
- 3 will be found between the means
- 4 is due to chance or sampling error

Question 42

Which symbol is conventionally used to indicate the value of the maximum probability that an error would be made if the null hypothesis is rejected which a particular researcher is willing to allow?

- 1 α
- 2 β
- 3 ρ
- 4 σ

Question 43

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

- 1 difference score when two means from dependent samples are compared
- 2 effect size
- 3 power of a test
- 4 amount of variance shared by two variables when they are correlated

Question 44

Effect size is calculated to determine -----

- 1 whether an effect is statistically significant or not
- 2 the ability of a statistical test to detect a significant relationship between variables when such a relationship does in fact exist
- 3 the level of confidence one can reach that the test is valid
- 4 whether a significant effect is meaningful from a practical point of view

Question 45

A random sample of $n=100$ people are tested to see how many items they can recall from a list with pictures of 12 items. The distribution of the results is found to be more or less normal with a mean of $\bar{x} = 7$ and a standard deviation of $s = 2.0$. What is the probability that a specific person, chosen at random from the general population, will remember 10 or more items from the list?

- 1 Less than 0.05
- 2 Between 0.05 and 0.1
- 3 Between 0.1 and 0.5
- 4 Greater than 0.5

[TURN OVER]

Question 46

Under which condition would a researcher use a t-statistic to test a hypothesis about an unknown population mean μ ?

The value of the (a) - - - - - is (b) - - - - -

- | | | |
|---|--|-------------|
| 1 | (a) population standard deviation σ , | (b) unknown |
| 2 | (a) standard error $s_{\bar{x}}$, | (b) unknown |
| 3 | (a) population standard deviation σ , | (b) known |
| 4 | (a) standard error $s_{\bar{x}}$, | (b) known |

Base your answers to Questions 47 to 49 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 is investigating the impairment of memory among persons who has been diagnosed as suffering from Korsakoff's syndrome (a neurological disorder linked to chronic alcohol abuse). He intends to test his prediction on a sample of 50 persons who were diagnosed as suffering from this syndrome.

Question 47

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

- 1 The mean memory span of the population of persons suffering from Korsakoff's syndrome is smaller than 7
- 2 The mean memory span of the population of persons suffering from Korsakoff's syndrome is equal to 7
- 3 The mean memory span of the population of persons suffering from Korsakoff's syndrome is not equal to 7
- 4 The mean memory span of the sample of persons suffering from Korsakoff's syndrome is equal to 7

Question 48

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

- 1 The mean memory span of the population of persons suffering from Korsakoff's syndrome is smaller than 7
- 2 The mean memory span of the population of persons suffering from Korsakoff's syndrome is equal to 7
- 3 The mean memory span of the population of persons suffering from Korsakoff's syndrome is not equal to 7
- 4 The mean memory span of the sample of persons suffering from Korsakoff's syndrome smaller than 7

Question 49

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

- 1 non-directional
- 2 two-tailed
- 3 directional
- 4 non-parametric

[TURN OVER]

Question 50

A pharmaceutical company claims that a new sleeping pill which they are marketing will put people to sleep in less than 15 minutes. A researcher wants to test see if the average time before people fall asleep after using this pill matches this claim. She uses the following hypothesis

$$H_0: \mu = 15$$

$$H_1: \mu < 15$$

Suppose she tests this on a random sample of $n = 40$ research participants who suffer from insomnia. She finds that the mean time before members of the sample fall asleep after using the pill is 14.3 minutes with a standard deviation of 3.2. A subsequent t-test produces a two-tailed p-value of 0.0345 and the level of significance was set at 0.05. What is the value of the one-tailed or directional p-value?

- 1 0.03450
- 2 0.01725
- 3 0.06900
- 4 Insufficient information is given to determine this value

Question 51

A researcher wants to compare the mean of the non-verbal reasoning scores of a sample of $n=25$ students with that of the general population. According to the literature, the non-verbal reasoning test which she uses was standardized to a population mean of $\mu = 100$ and a population standard deviation of $\sigma = 10$. What is the value of the standard deviation of the sampling distribution of the mean which will be required to calculate the $z_{\bar{x}}$ test statistic?

- 1 2.5
- 2 0.4
- 3 10
- 4 2

Question 52

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

- 1 The null hypothesis adequately explains the results
- 2 The alternative hypothesis is true
- 3 The alternative hypothesis should be rejected
- 4 The null hypothesis cannot be rejected

[TURN OVER]

Base your answers to Questions 53 and 54 on the following scenario

A market researcher is asked to conduct a study to examine people's reaction to a movie trailer. He draws a random sample of 20 males and 20 females who saw the trailer. He asks them to indicate how likely it is that they will go and see the movie on a 7-point scale, where 1 indicates 'not at all' and 7 indicates 'definitely'. He wants to compare to establish whether males and females differ in their intention to see the movie based on an exposure to the trailer.

Suppose the researcher finds that the mean and standard deviations for each group in the sample is as follows

Males	$\bar{x}_M = 5.7$	$s_M = 2.1$
Females	$\bar{x}_F = 4.19$	$s_F = 1.6$

Question 53

Which are the appropriate statistical hypotheses for testing the researcher's hypothesis?

- | | | | |
|---|------------------------------|---------------------------------|--|
| 1 | $H_0: \bar{x}_M = \bar{x}_F$ | $H_1: \bar{x}_M \neq \bar{x}_F$ | |
| 2 | $H_0: \mu_M = \mu_F$ | $H_1: \mu_M > \mu_F$ | |
| 3 | $H_0: \mu_M = \mu_F$ | $H_1: \mu_M \neq \mu_F$ | |
| 4 | $H_0: \mu = 0$ | $H_1: \mu \neq 0$ | |

Question 54

Which is the appropriate test statistic to calculate?

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

Question 55

A researcher is asked by a motivational speaker to establish whether a workshop on assertiveness training is effective. The researcher decides to use a particular questionnaire which tests an individual's level of assertiveness. He presents the questionnaire to each of a sample of 50 participants in the workshop before it begins and once again after it has ended. When analysing these results the researcher should use a statistical test for the - - - - -

- 1 comparison of means for a single group
- 2 comparison of means for two dependent groups
- 3 comparison of means for two independent groups
- 4 correlation of two variables

[TURN OVER]

Question 56

The probability under the null hypothesis of obtaining a t-value of 2.0 or higher in the case of a two-tailed test is - - - - that for a one-tailed test

- 1 the same as
- 2 twice
- 3 half
- 4 impossible to calculate from

Question 57

When calculating the t-test for two independent samples, which of the following assumptions must to be made if the sample sizes are relatively small?

- (a) the value of σ is known for both populations
 - (b) the two population means differ
 - (c) the two population have the same variance
 - (d) the two samples come from normally distributed data
- 1 (a) and (d)
 - 2 (b) and (c)
 - 3 (a) and (c)
 - 4 (c) and (d)

Question 58

A sample of 70 people are tested on a test for assertiveness before and after a workshop in which they are given assertiveness training. Which of the following is the most appropriate formula for comparing the mean assertiveness score before the training with the one thereafter?

- 1 $t_c = \frac{\bar{x} - \mu}{s/\sqrt{n}}$
- 2 $\chi^2_p = \sum_{i,j} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$
- 3 $t_c = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$
- 4 $t_d = \frac{\bar{d}}{\frac{s_d}{\sqrt{n}}}$

[TURN OVER]

Base your answers to Questions 59 and 60 on the following scenario:

A researcher compares a sample of children from a special school for gifted children with a group of children randomly drawn from other schools on a test which measures the creativity of the children on a 9-point scale. She finds the following

Group 1 ('gifted' children)	$n_1 = 40,$	$\bar{x}_1 = 5.5,$	$s_1 = 1.2$
Group 2 (other children)	$n_2 = 62,$	$\bar{x}_2 = 4.9,$	$s_2 = 0.8$
All children pooled	$n = 102,$	$\bar{x} = 5.1,$	$s = 1.0$

She calculates a t-test statistic of $t=3.37$ and finds that $p=0.0006$, which she finds to be significant on the level of $\alpha = 0.01$.

Question 59

Even though the result described in the scenario is statistically significant, the researcher is unsure whether the difference between the means is large enough to be of practical importance. Which of the following strategies are the most appropriate to get a better idea of the usefulness of the result?

- 1 Calculating the effect size
- 2 Calculating the correlation coefficient
- 3 Calculating the power of the test
- 4 The low p-value is sufficient to show that the result is important in practical terms

Question 60

If the researcher calculates the value implied in the previous question, what would the absolute value (ignoring the sign) of the result be?

- 1 Between 0.0 and 0.3
- 2 Between 0.3 and 0.5
- 3 Between 0.5 and 0.8
- 4 Greater than 0.8

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 measured on an interval or ratio scale on a single variable
- 4 two groups of subjects measured on an interval or ratio scale on two variables

[TURN OVER]

Question 62

A researcher obtains a correlation coefficient of 0.40 between IQ scores and examination marks in a random sample of 10 PYC3704 students, and again a correlation coefficient of 0.40 between the same two variables on another random sample of 100 PYC3704 students. Which of these two correlation coefficients is the more likely to differ significantly from zero under the null hypothesis?

- 1 That obtained on the smaller sample
- 2 Both are equally likely to be significant
- 3 That obtained on the larger sample
- 4 There is no relationship between the size of the correlation coefficient and significance

Question 63

Which of the combinations of the options below can be substituted in the following sentence to describe the situation when a significant negative correlation is found between two variables X and Y?

A person who scores - - - - on variable X is likely to have a - - - - score on variable Y

- (a) low, low
- (b) low, high
- (c) high, low
- (d) high, high

- 1 (a) and (d)
- 2 (b) and (c)
- 3 (a) and (c)
- 4 (c) and (d)

Question 64

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, or technical worker) is at all related to 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 t-test for two dependent samples
- 4 The chi-square (χ^2) test statistic

[TURN OVER]

Base your answers to Questions 65 and 66 on the following scenario:

A group of hospitalized patients who have been diagnosed as suffering from schizophrenia are treated with certain drugs over a period of time. These drugs were prescribed to improve their mental alertness. A researcher studies a random sample of 30 these patients who have been on these drugs for varying amounts of time, hoping to establish a relationship between the number of days of drug treatment and patients' scores on a Mental Alertness Test.

Question 65

Which is an appropriate null hypothesis for this research?

- 1 $\rho = 0$
- 2 $\mu = 0$
- 3 $r = 0$
- 4 $\mu_1 = \mu_2$

Question 66

Which is an appropriate alternative hypothesis for this research?

- 1 $\rho \neq 0$
- 2 $\mu_1 \neq \mu_2$
- 3 $\rho > 0$
- 4 $r > 0$

Question 67

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
- 4 20

Question 68

If there is *no relationship at all* between two variables, what would be the most likely value of Pearson's correlation coefficient r , out of the following?

- 1 -1.0
- 2 0.5
- 3 0.0
- 4 1.0

[TURN OVER]

Question 69

A contingency table represents - - - - -

- 1 the distribution of the frequencies for a variable
- 2 the data used to plot the relationship between two variables
- 3 frequency counts for each of a number of possible outcomes of an experiment
- 4 the frequency counts when two nominal-scale variables are cross-classified

Question 70

Which of the values given below is the closest to the probable value of the Pearson's product moment correlation coefficient for the variables **X** and **Y**?

Variable X	1	2	3	4	5	6	7	8
Variable Y	16	14	12	10	8	6	4	2

- 1 -1 0
- 2 0 5
- 3 0
- 4 1 0

END OF EXAM PAPER

[TURN OVER]

[TURN OVER]

Appendix List of formulas

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

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

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

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

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

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

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

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

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

[TURNOVER]

Appendix Probabilities associated with the standard normal distribution (z)

<i>z</i>	Mean to <i>z</i>	Larger portion	Smaller portion	<i>z</i>	Mean to <i>z</i>	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)

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)

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

[TURNOVER]

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
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

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PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g. PSY100-X STUDIE EENHEID by PSY100-X		INITIALS AND SURNAME VOORLETTERS EN VAN	
1		3	
PAPER NUMBER VRAESTELNOMMER		DATE OF EXAMINATION DATUM VAN EKSAMEN	
2		4	
STUDENT NUMBER STUDENTENOMMER		EXAMINATION CENTRE (E.G. PRETORIA) EKSAMENSENTRUM (BY PRETORIA)	
6		5	
7		8	
9		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 YOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

1	1) 2) 3) 4) 5)	36	1) 2) 3) 4) 5)	71	1) 2) 3) 4) 5)	106	1) 2) 3) 4) 5)
2	1) 2) 3) 4) 5)	37	1) 2) 3) 4) 5)	72	1) 2) 3) 4) 5)	107	1) 2) 3) 4) 5)
3	1) 2) 3) 4) 5)	38	1) 2) 3) 4) 5)	73	1) 2) 3) 4) 5)	108	1) 2) 3) 4) 5)
4	1) 2) 3) 4) 5)	39	1) 2) 3) 4) 5)	74	1) 2) 3) 4) 5)	109	1) 2) 3) 4) 5)
5	1) 2) 3) 4) 5)	40	1) 2) 3) 4) 5)	75	1) 2) 3) 4) 5)	110	1) 2) 3) 4) 5)
6	1) 2) 3) 4) 5)	41	1) 2) 3) 4) 5)	76	1) 2) 3) 4) 5)	111	1) 2) 3) 4) 5)
7	1) 2) 3) 4) 5)	42	1) 2) 3) 4) 5)	77	1) 2) 3) 4) 5)	112	1) 2) 3) 4) 5)
8	1) 2) 3) 4) 5)	43	1) 2) 3) 4) 5)	78	1) 2) 3) 4) 5)	113	1) 2) 3) 4) 5)
9	1) 2) 3) 4) 5)	44	1) 2) 3) 4) 5)	79	1) 2) 3) 4) 5)	114	1) 2) 3) 4) 5)
10	1) 2) 3) 4) 5)	45	1) 2) 3) 4) 5)	80	1) 2) 3) 4) 5)	115	1) 2) 3) 4) 5)
11	1) 2) 3) 4) 5)	46	1) 2) 3) 4) 5)	81	1) 2) 3) 4) 5)	116	1) 2) 3) 4) 5)
12	1) 2) 3) 4) 5)	47	1) 2) 3) 4) 5)	82	1) 2) 3) 4) 5)	117	1) 2) 3) 4) 5)
13	1) 2) 3) 4) 5)	48	1) 2) 3) 4) 5)	83	1) 2) 3) 4) 5)	118	1) 2) 3) 4) 5)
14	1) 2) 3) 4) 5)	49	1) 2) 3) 4) 5)	84	1) 2) 3) 4) 5)	119	1) 2) 3) 4) 5)
15	1) 2) 3) 4) 5)	50	1) 2) 3) 4) 5)	85	1) 2) 3) 4) 5)	120	1) 2) 3) 4) 5)
16	1) 2) 3) 4) 5)	51	1) 2) 3) 4) 5)	86	1) 2) 3) 4) 5)	121	1) 2) 3) 4) 5)
17	1) 2) 3) 4) 5)	52	1) 2) 3) 4) 5)	87	1) 2) 3) 4) 5)	122	1) 2) 3) 4) 5)
18	1) 2) 3) 4) 5)	53	1) 2) 3) 4) 5)	88	1) 2) 3) 4) 5)	123	1) 2) 3) 4) 5)
19	1) 2) 3) 4) 5)	54	1) 2) 3) 4) 5)	89	1) 2) 3) 4) 5)	124	1) 2) 3) 4) 5)
20	1) 2) 3) 4) 5)	55	1) 2) 3) 4) 5)	90	1) 2) 3) 4) 5)	125	1) 2) 3) 4) 5)
21	1) 2) 3) 4) 5)	56	1) 2) 3) 4) 5)	91	1) 2) 3) 4) 5)	126	1) 2) 3) 4) 5)
22	1) 2) 3) 4) 5)	57	1) 2) 3) 4) 5)	92	1) 2) 3) 4) 5)	127	1) 2) 3) 4) 5)
23	1) 2) 3) 4) 5)	58	1) 2) 3) 4) 5)	93	1) 2) 3) 4) 5)	128	1) 2) 3) 4) 5)
24	1) 2) 3) 4) 5)	59	1) 2) 3) 4) 5)	94	1) 2) 3) 4) 5)	129	1) 2) 3) 4) 5)
25	1) 2) 3) 4) 5)	60	1) 2) 3) 4) 5)	95	1) 2) 3) 4) 5)	130	1) 2) 3) 4) 5)
26	1) 2) 3) 4) 5)	61	1) 2) 3) 4) 5)	96	1) 2) 3) 4) 5)	131	1) 2) 3) 4) 5)
27	1) 2) 3) 4) 5)	62	1) 2) 3) 4) 5)	97	1) 2) 3) 4) 5)	132	1) 2) 3) 4) 5)
28	1) 2) 3) 4) 5)	63	1) 2) 3) 4) 5)	98	1) 2) 3) 4) 5)	133	1) 2) 3) 4) 5)
29	1) 2) 3) 4) 5)	64	1) 2) 3) 4) 5)	99	1) 2) 3) 4) 5)	134	1) 2) 3) 4) 5)
30	1) 2) 3) 4) 5)	65	1) 2) 3) 4) 5)	100	1) 2) 3) 4) 5)	135	1) 2) 3) 4) 5)
31	1) 2) 3) 4) 5)	66	1) 2) 3) 4) 5)	101	1) 2) 3) 4) 5)	136	1) 2) 3) 4) 5)
32	1) 2) 3) 4) 5)	67	1) 2) 3) 4) 5)	102	1) 2) 3) 4) 5)	137	1) 2) 3) 4) 5)
33	1) 2) 3) 4) 5)	68	1) 2) 3) 4) 5)	103	1) 2) 3) 4) 5)	138	1) 2) 3) 4) 5)
34	1) 2) 3) 4) 5)	69	1) 2) 3) 4) 5)	104	1) 2) 3) 4) 5)	139	1) 2) 3) 4) 5)
35	1) 2) 3) 4) 5)	70	1) 2) 3) 4) 5)	105	1) 2) 3) 4) 5)	140	1) 2) 3) 4) 5)

Specimen only