



DEPARTMENT INDUSTRIAL PSYCHOLOGY & PEOPLE
MANAGEMENT

PROGRAMME IN INDUSTRIAL PSYCHOLOGY
SUPPLEMENTARY EXAMINATION

MODULE: RESEARCH DESIGN AND ANALYSIS: QUANTITATIVE
RESEARCH
CODE: IPS8X08/IND03X7
TIME: 3:00 HOURS
MARKS: 80
DATE: JULY 2017
LECTURER(S): DR M GELDENHUYS
MODERATOR(S): PROF L DE BEER

Student Number	
Student Name & Surname	

INSTRUCTIONS:

- This test paper is divided into three sections:
- **All sections on must be answered on the answer sheet in ink**
- **Fill in your name and student number in the blocks provided** on the front page of the paper.
- You will be provided with a Flash Drive on which the data for all analysis should be present, copy this onto your desk top. Take 10 minutes at the start of the paper to familiarise yourself with the data and disk, you will be allowed access to SPSS and Office Excel to compute analyses (THESE SHOULD BE THE ONLY PROGRAMMES RUNNING ON THE COMPUTER)
- Make sure you complete the attendance slip.
- Each student will have access to a computer.
- **SAVE** your work as you go along, any information and data lost during the course of the test/exam will be the responsibility of the examinee.
- In case of a temporary power outage, be aware that the test/exam will be rescheduled or an alternative assessment may be provided.
- The internet has been not disabled; take note that any student found accessing any information other than provided on the disk on the internet will immediately be disqualified from the Test/Examination.
- On completion of the exam, **hand in all documents.**

MOST IMPORTANT:

- The university's rules and regulations regarding academic dishonesty will be strictly applied. Any dishonesty will be acted upon immediately and no exceptions will be made.

TAKE NOTE:

- If you have to define, describe, explain or discuss anything in **you must use proper sentences.**
- Please write **neatly and legibly.**

Section A. Definitions and Concepts (Provide examples to illustrate your understanding)

[40]

1. Define, explain:
 - a. Regression analysis. [2]
 - b. ANOVA. [2]
 - c. Moderated regression. [2]
 - d. Mediated regression. [2]
 - e. Statistical significance [2]
2. Define and explain what a covariance is. [4]
3. Define and explain null and alternative hypotheses. Explain how we use both correlation and regression in order to test these hypotheses [6]
4. Define and explain the coefficient of determination. How does the interpretation differ for correlation and regression? [6]
5. Define Ordinary Least Squares (OLS) Regression. [3]
6. Explain the seven assumptions of an Ordinary Least Squares Regression (OLS) Model. [7]
7. Define confidence interval [2]
8. Differentiate between Pearson and Spearman correlation coefficients. [2]

Section B. Manual Calculations and Interpretations

[15]

Regression Analysis

X ₁ : Growth opportunities	3	5	6	7	8	2
X ₂ : Work engagement	7	9	10	12	6	4

9. Tshego is convinced that Growth Opportunities would impact Work Engagement, please assist her by:

$$Y_i = a + bX_i + e$$

- Calculating and interpreting the slopes for the independent variable. [10]
- Calculating and interpreting the intercept. [5]

Section C. SPSS Calculations and Interpretations (Provide interpretations for these results)

Please see questionnaire items [40]

Use the SPSS data set and analyse the following, and interpret the results:

General Analysis

(Please calculate the means of the measures before you start with the following analysis)

Compute *Burnout* (OBI1 to OBI6), *Life Satisfaction* (LS1 to LS5) and *Happiness* (SHS1 to SHS5).

12. Is *Burnout* (OBI1 to OBI6), *Life Satisfaction* (LS1 to LS5) and *Happiness* (SHS1 to SHS5) normally distributed? Explain why? [4]

Correlation Analysis

12. Using Pearson's correlation in SPSS:
- Using all three variables in pairs. What is the correlation coefficient (indicate significance), the effect sizes between each pair? Calculate

the coefficient of determination and interpret this results.
[15]

- b. Which one of these pairs has the strongest relationship, and why? [2]
- c. Please determine if there is significant differences in how men (1) and women (2) experience burnout, life satisfaction and happiness. Report your finding. [5]

Multiple Regression Analysis

13. Running a Multiple Regression Analysis with *Burnout* and *happiness* as independent variables (X_1 and X_2 , respectively), establish their effect on *Life Satisfaction* (Y).

$$Y_i = a + bX_i + u_i$$

- a. Consider the above equation, provide the multiple regression line for the direct effect of Burnout on Life Satisfaction, by inserting the slopes and intercepts to the formula. [4]
- b. Report the overall regression model inclusive of both independent variables on the dependent variable, how did the Multiple Regression Model Perform?

[10]

TOTAL: 100