FACULTY/COLLEGE	College of Business and Economics
DEPARTMENT	Industrial Psychology and People Management
CAMPUS(ES)	APK
MODULE NAME	Psychometric Theory
MODULE CODE	IPS8x07
SEMESTER	Second
ASSESSMENT OPPORTUNITY, MONTH AND YEAR	Final Summative Assessment Opportunity November 2019

ASSESSMENT DATE	20 November 2019	SESSION	08h30
ASSESSOR(S)	Prof Carin Hill		
MODERATOR(S)	Prof Lené Graupner		
DURATION	3 hours (180 min)	TOTAL MARKS	78

NUMBER OF PAGES OF QUESTION PAPER (Including cover page)	3

INFORMATION/INSTRUCTIONS:
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- There are two sections in this assessment.
- Section A is a closed-book examination.
- Section B is an open-book examination.
- Answer each section in a separate book.
- **All questions in each section are compulsory.**
- **Once you have completed Section A, you have to hand in your answer paper.**
- **Once Section A is handed in, you may start with Section B on the provided computer.**
- Read the questions carefully and answer only what is required.
- Number your answers clearly and correctly as per the question paper.
- Write neatly and legibly on both sides of the paper in the answer book, starting on the first page.
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SECTION A: Theory

QUESTION 1   **[30 MARKS]**

1.1   What is factor analyses?   (5)

1.2   Illustrate and explain: A simple conceptual model for a factor analysis.   (10)

1.3   Why do we do a factor analysis?   (4)

1.4   Differentiate between Principal Component Analysis (PCA) and Common Factor
        Analysis.   (8)

1.5   Besides the "eigenvalue-greater-than-1" rule for factor extraction, briefly describe three
        (3) 'rules of thumb' to determine how many factors to extract using Exploratory Factor
        Analysis (EFA).   (3)

SECTION B: APPLICATION

Read through Appendix 1 to familiarise yourself with the questionnaire used in the subsequent analyses and exam questions.

Use the provided data file (Exam 1 2019.sav) to conduct the relevant analyses in SPSS in order to answer the questions below.

QUESTION 2: Descriptive Statistics   **[8 MARKS]**

2.1   How many items are in this questionnaire?   (1)

2.2   What is the mean score on q8a?   (1)

2.3   What is the most negatively skewed item?   (1)

2.4   What is the most positively skewed item?   (1)

2.5   What is the item score range for all the items?   (1)

2.6   What item has the highest standard deviation?   (1)

2.7   How many participants are under 31?   (1)

2.8   What percentage participants had a casual employment status?   (1)

QUESTION 3: Exploratory Factor Analysis (EFA)   **[40 MARKS]**

3.1   Which statistic will you use to determine whether the data set is factorable?   (1)

3.2   What would the cut-off value be for this particular statistic?   (1)

3.3   Using the suggested statistic stated in 3.1, is this data set for the 'importance' items factorable?   (1)

3.4   Which two 'importance' items are the most strongly related to one another?   (1)

3.5   How many factors should be extracted for the 'importance' items? Give reasons for your answer.   (5)

3.6   Extract the factors suggested in 3.5 using the appropriate extraction and rotation techniques and answer the following questions:

3.6.1   Which items make up the 'importance' scale's Factor 1? Explain why you chose these items.   (6)

3.6.2   Which 'importance' items would you flag for removal? Why?   (2)

3.6.3   Give a definition for each of your extracted factors.   (6)

3.6.4   Comment on the strength of the relationship between your extracted factors.   (3)

3.6.5   Report each of the 'importance' factors' reliability and indicate if the reliability could be improved. If so, how?   (4)

3.7   Print your output and hand in for examination.   (10)