

	<b>UNIVERSITY OF RUHUNA</b> <b>FACULTY OF MANAGEMENT AND FINANCE</b>	No. of Pages : 05 No. of Questions: 06 Total Marks : 70
	BACHELOR OF BUSINESS ADMINISTRATION HONOURS DEGREE 4000 LEVEL FIRST SEMESTER END EXAMINATION – AUGUST/SEP. 2022	<i>Three Hours</i>
<b>HRM 41403 – Data Analysis for Research</b>		Academic Year 2021/2022
<b>Instructions</b> ➔ Answer only Five (05) questions.		

1. i. What is a Research? Explain in your words with suitable examples.

(Marks: 07)

ii. Piyal is one of your friends who is studying in the junior batch of your Faculty. He is interested in researching the impact of modern health and safety practices and employees' happiness of machine operators in the garment sector, Sri Lanka. Write your answer advising him on the importance of applying a quantitative research approach to this study.

(Marks: 07)

**(Total marks: 14)**

2. i. Discuss the importance of using the Statistical Package for Social Science (SPSS) for analyzing data in research.

(Marks: 07)

ii. What are the differences between Parametric and Nonparametric tests in statistics? Explain.

(Marks: 07)

**(Total marks: 14)**

3. i. Explain four major requirements for applying parametric tests in the data analysis process in social science research.

(Marks: 06)

- ii. A mini survey was conducted by a group of students in your university on the ATM machine users in a particular district. The following table shows the descriptive statistics regarding the age distribution of the respondents.

Interpret at least four (04) univariate analysis techniques using the given table.

Descriptive				
		Statistic	Std. Error	
Age	Mean	33.42	.916	
	95% Confidence Interval for Mean	Lower Bound	31.60	
		Upper Bound	35.24	
	5% Trimmed Mean	33.12		
	Median	31.50		
	Variance	75.595		
	Std. Deviation	8.695		
	Minimum	18		
	Maximum	57		
	Range	39		
	Interquartile Range	13		
	Skewness	.482	.254	
	Kurtosis	-.487	.503	

(Marks: 08)

(Total marks: 14)

4. i. One of the lecturers analyzed the results of several first-year university students. He found a correlation between number of hours studied (on average per week throughout the semester) and their end semester examination marks (out of 100).

Correlations			
		Study time	Exam marks
Study time	Pearson Correlation	1	.844
	Sig. (2-tailed)		.002
	N	10	10
Exam marks	Pearson Correlation	.844	1
	Sig. (2-tailed)	.002	
	N	10	10

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Based on the above correlation table, answer the questions given below;

- a. What is the strength of the relationship between the variables as indicated by Pearson's  $r$ ?  
(Marks: 01)
- b. What is the level of significance of the computed value of Pearson's  $r$ ?  
(Marks: 01)
- c. How many cases are involved in the calculation for correlation analysis?  
(Marks: 01)
- d. What is your major conclusion in relation to the above finding? Explain  
(Marks: 02)

- ii. The following tables show the reliability statistics for the questionnaire items of a study of employee training. Based on it, what would be your conclusion in relation to the inter-item consistency reliability? Mention reasons for your answer.

Reliability Statistics	
Cronbach's Alpha	N of Items
.680	4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
employee Training Q1	5.62	.940	.105	.839
employee Training Q2	5.81	.604	.693	.443
employee Training Q3	5.75	.837	.446	.629
employee Training Q4	5.81	.600	.735	.414

(Marks: 05)

- iii. "Face validity is important because it's a simple first step to measure the validity of a test or technique". Explain, how to ensure the face validity of a research questionnaire?

(Marks: 04)

**(Total Marks: 14)**

5. i. Followings are the regression results received for a particular study. Based on the results, answer the questions given below.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.956 <sup>a</sup>	.914	.912	.41020		
a. Predictors: Job performance						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.780	.115		50.298	.000
	Work Overload (X1)	-.285	.109	-.271	-2.605	.011
	Working Relationship (X2)	-.274	.101	-.302	-2.711	.008
	Physical Work Environment (X3)	-.385	.098	-.400	-3.930	.060
a. Dependent Variable: Job performance						
b. Predictors: (Constant), Work Overload (X1), Working Relationship (X2), Physical Work Environment (X3)						

- a. What would be the topic of this study? (Marks: 01)
- b. Name the dependent variable and the independent variables of this study. (Marks: 02)
- c. Write down the three (03) possible hypotheses for this study. (Marks: 03)
- d. Interpret the results in the table and explain the major conclusion of this research with statistical evidence. (Marks: 04)

ii. The following table indicates the results received for exploratory factor analysis. What would be the best solution regarding the number of factors that can be explained by the analysis? Explain.

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.024	33.532	33.532	4.024	33.532	33.532	3.198	26.648	26.648
2	2.310	19.250	52.783	2.310	19.250	52.783	2.273	18.942	45.590
3	1.249	10.407	63.190	1.249	10.407	63.190	2.112	17.600	63.190
4	.888	7.397	70.587						
5	.636	5.300	75.886						
6	.552	4.603	80.489						
7	.543	4.526	85.016						
8	.449	3.743	88.759						
9	.392	3.270	92.028						
10	.375	3.126	95.154						
11	.360	3.001	98.155						
12	.221	1.845	100.000						

Extraction Method: Principal Component Analysis.

(Marks: 04)

(Total Marks: 14)

6. Briefly explain four (04) of the followings.

- i. Levels of measurement scales
- ii. Basic operations in SPSS
- iii. Treatments for data cleaning
- iv. KMO and Bartlett's Test
- v. Demographic statistics of the sample

(Each carries 3.5 Marks)

(Total Marks 14)