

2023

COMMERCE

Paper : GE-404

(Business Research Methods)

Full Marks : 40

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Module - I

Answer *any two* questions.

1. (a) Distinguish between 'Exploratory Research' and 'Conclusive Research'.
(b) Explain the factors affecting business research. 5+5
2. (a) Discuss briefly the formulation of research problem.
(b) Explain the significance of literature review in business research. 5+5
3. (a) Highlight the points of differences between ordinal and interval scale.
(b) Explain the concept of 'Construct validity' with an example. 5+5
4. (a) From the following information, identify the type of data being used by the following researchers and give supporting reasons :
 - (i) A researcher is interested to explore the price trend of IPO's being issued and listed in the National Stock Exchange of India during the COVID period. For this, she obtained the listing prices from the website of NSEI and issue prices from the respective Red-herring prospectus of the issuing companies.
 - (ii) An anthropologist studying the lifestyles and social behaviour of some tribal community of Jharkhand, Bengal and Odisha state. She visited personally all these tribal areas as part of her field study and documented their lifestyle.
 - (iii) A behavioural scientist is studying the impact of job intrinsic factor on the work-life balance of employees working in the managerial pay grade of private banking organisations. He conducted a survey amongst the banking employees of all private banks operating in Kolkata city.
- (b) Discuss briefly the different methods of collecting secondary data. (2+2+2)+4

Please Turn Over

Module - II

Answer *any two* questions.

5. (a) 'Interquartile range is a better measure dispersion compared to the difference between maximum and minimum value of a data set.' Give your reasons for agreement or disagreement.
- (b) Two series; namely, A and B having mean 10 and 25, respectively and variance 25 and 81, respectively are being considered by a researcher. Which one among the two will the researcher choose, if he wants lesser inconsistency in the series?
- (c) Write a short note on descriptive statistics. 3+3+4
6. (a) State the significance of multivariate analysis.
- (b) What hypothesis is examined by Bartlett's Test of Sphericity? For what purpose is this test used?
- (c) Complete the following output table (missing figure) obtained from the Principal Component Analysis of a study and interpret the results : 3+3+4

Variable	Communality	Factor	Eigenvalue	% of Variance
V1	1.0	1	3.25	?
V2	1.0	2	1.78	?
V3	1.0	3	1.23	?
V4	1.0	4	0.78	?
V5	1.0	5	0.35	?
V6	1.0	6	0.30	?
V7	1.0	7	0.19	?
V8	1.0	8	0.12	?

7. A consumer durable company has adopted an aggressive policy to sale its products. The company has spent on advertisements, employed salesmen and invested heavily in showrooms. Accordingly, the analyst team of the company has developed a multiple regression model based on the data of 24 months randomly selected to forecast sales depending on advertisement (in thousand rupees), number of salesmen, number of showrooms, and showroom age (in years). The regression output is given below :

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	?	?	?	?	2.258	
a. Predictors: (Constant), SHOWROOM, SALESMEN, ADV, SHOWROOMAGE						
b. Dependent Variable: SALES						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167075030.103	4	41768757.526	27.443	.000 ^b
	Residual	28917832.397	19	1521991.179		
	Total	195992862.500	23			

Coefficients						
Model		Unstandardized Coefficients		t	Sig.	Collinearity Statistics
		B	Std. Error			VIF
1	(Constant)	-2188.984	2073.112	-1.056	.304	
	SHOWROOMAGE	216.812	139.376	1.556	.136	3.284
	SALESMEN	-75.143	18.772	-4.002	.000	1.662
	ADV	19.872	3.541	5.611	.000	1.405
	SHOWROOM	244.599	174.277	1.404	.177	2.048

a. Dependent Variable: SALES

Note : The Durbin-Watson Statistic 1 percent significance points of d_L and d_U for 24 observations and 4 regressors (excluding the intercept term) are 0.805 and 1.527 respectively. You are required to answer the following :

- Complete the Model Summary by calculating the missing figures.
 - Interpret the ANOVA table by clearly stating the null and alternative hypothesis of F test and give your opinion on the overall significance of the model.
 - Are the coefficients of independent variables and the constant term statistically significant? Interpret the coefficient values.
 - Is the model free from autocorrelation problem? Is there any multicollinearity problem? Interpret based on appropriate statistics provided in the model output. 2+3+2+3
8. (a) How is ADF test used for unit root test in time series analysis?
- (b) With a view to analyzing the long-run cointegration in the pre-Covid-19 global crisis period (October 24, 2019 to February 23, 2020) among the stock markets of BRICS nations, their largest stock exchanges based on judgement sampling technique have been identified. They are : (i) IBOVESPA (BOVESPA) (Brazil); (ii) MOEX (Russia); (iii) BSE Sensex 30 (SENSEX) (India); (iv) SSE Composite Index (SSECI) (China); and (v) JTOPI (South Africa). Since all the stock indices data in the pre-Covid-19 global crisis period are non-stationary at level, long run relationship among them is estimated using Johansen Cointegration technique. Results of Johansen Cointegration Test (Pre-Covid-19 Global Crisis Period) are as follows :

No. of Hypothesized CE(s)	Eigen-value	Trace Test		Max Eigenvalue Test	
		Statistic	Prob.	Statistic	Prob.
None	0.364562	68.12515	0.0677	29.47365	0.1534
At most 1	0.231533	38.65150	0.2744	17.11824	0.5698
At most 2	0.176356	21.53326	0.3252	12.61114	0.4886
At most 3	0.072456	8.922124	0.3726	4.888998	0.7558
At most 4	0.060162	4.033126	0.0446*	4.033126	0.0446*

*Significant at 5% level of significance

You are asked to elaborate the inferences based on the results of Johansen Cointegration Test (Pre-Covid-19 Global Crisis Period). 4+6