

MARKING SCHEME

ATW 202 BUSINESS RESEARCH METHODS

Part 1 Objective Answers

1	C
2	A
3	C
4	A
5	D
6	D
7	B
8	D
9	D
10	B
11	D
12	D
13	E
14	B
15	A
16	C
17	D
18	A
19	C
20	A

21	A
22	B
23	A
24	B
25	A
26	A
27	A
28	B
29	B
30	A
31	B
32	B
33	B
34	B
35	A
36	A
37	B
38	A
39	A
40	B

Question 2

- Causal study** as the manager wants to see which method leads to more loyalty.
- Experimental**, the manager will manipulate the gimmicks.
- Field Experiment** as it is done in the normal setting with manipulation.
- Longitudinal** as data will be collected before and after the implementation.
- Individuals/Employees**, the manager will study the effect on individual employees.

2 Marks for each section
1 Mark for the **bold** answer
1 Mark for the **explanation**

Question3

Based on the explanation given above, answer the following questions.

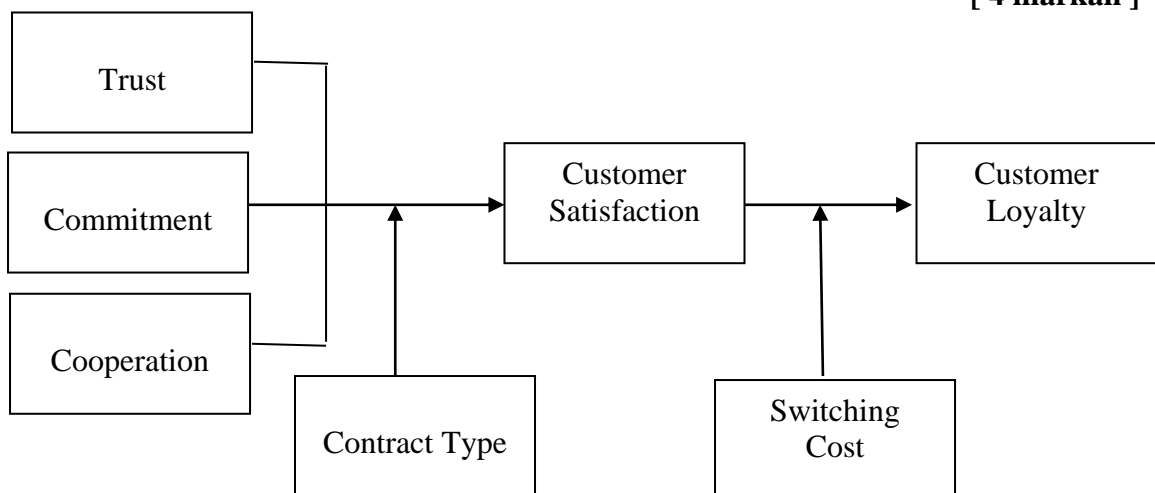
- (a) What is the research problem?

What are the factors influencing customer loyalty?

[2 markah]

- (b) Develop a suitable research framework.

[4 markah]



- (c) Develop 4 hypotheses to be tested.

[4 marks]

- H₁ Trust has a positive effect on Customer Satisfaction.**
H₂ Commitment has a positive effect on Customer Satisfaction.
H₃ Cooperation has a positive effect on Customer Satisfaction.
H₄ Customer Satisfaction has a positive effect on Customer Loyalty.

- H₅** The relationship between trust and customer loyalty is mediated by customer satisfaction.
- H₆** The relationship between commitment and customer loyalty is mediated by customer satisfaction.
- H₇** The relationship between cooperation and customer loyalty is mediated by customer satisfaction.
- H₈** The positive relationship between customer satisfaction and customer loyalty will be stronger when switching cost is high
- H₉** The positive relationship between trust and customer satisfaction will be stronger when the contract is relational

Question 4

Please use your judgement

By giving suitable examples, explain each of the following:

- (a) Differentiate R^2 from the adjusted R^2 .

R^2 is the coefficient of determination which tells us how much the independent variables taken together can explain the variance in the dependent variable. For example if the R^2 is 0.50 then the IVs can explain 50% of the variance in DV. The adjusted R^2 is used when we want to compare 2 or more models. The reason is the analysis will adjust for model complexity (number of IVs) and sample size (n).

[4 marks]

- (b) Explain what is meant by generalizability and why this is important in research.

Refers to the applicability of research in one organizational setting to other settings. Findings that participation in decision making enhances organizational commitment are found to be true in a variety of manufacturing, industrial, and service organizations, and not merely in the particular organization studied by the researcher, then the generalizability of the findings to other organizational settings is enhanced. The more generalizable the research, the greater its usefulness and value.

[4 marks]

- (c) What are the sources of measurement errors in research?

Respondent, Instrument, Measurer and Situation

[4 marks]

- (d) Explain what stratified random sampling is and when they can be used.

Population is divided into sub-population or stratum and the subjects selected randomly.

- *Proportionate – follow the population proportions*
- *Disproportionate – does not follow the population proportions*

Stratified sampling is used when we need to control the sample size in each strata and to provide data to represent and analyze subgroups. The reason being we have heterogeneous sub-groups and we want all groups to be represented.

[4 marks]

(e) *How do you establish the evidence for causation?*

Covariation of variables, Time Sequence, No other causes and logical reasoning (theory)

[4 marks]

Question 5

Based on the output given, answer the following questions.

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(a) *Can we develop a regression equation based on the results of the analysis?*

[2 marks]

Yes, the F = 129.498 and Signif of F = 0.000 < 0.01 so we can conclude that all the 3 variables together can significantly explain the variation in SALES.

(b) *Determine the best fitting regression equation.*

[2 marks]

SALES = -26.613 + 0.085 (ADVERTS) + 3.367 (AIRPLAY) + 11.086 (ATTRACT)

(c) *Develop and test these 3 hypotheses at the 5% level:*

- *When ADVERTS are high then SALES will increase*
- *When AIRPLAY increases the SALES will also increase*
- *There is a positive relationship between ATTRACT and SALES*

[6 marks]

Variable	t-value	p value		Decision
H₀ b₁ = 0				
H₁ b₁ > 0				
ADVERTS	12.261	0.000	p < 0.05	Reject H₀
H₀ b₂ = 0				
H₁ b₂ > 0				

AIRPLAY	12.123	0.000	p < 0.05	Reject H₀
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H₀ b₃ = 0

H₁ b₃ > 0

ATTRACT	4.548	0.000	p < 0.05	Reject H₀
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(d) *If given the values below calculate the expected subscription.*

ADVERTS = RM 568 500

AIRPLAY = 20

ATTRACT = 1

SALES = -26.613 + 0.085 (568.5) + 3.367 (20) + 11.086 (1)
= RM 100 136

[2 marks]

(e) *Interpret the standardized beta of ADVERTS.*

The standardized beta = 0.511, which means 1 standard deviation change in ADVERTS will lead to 0.511 standard deviation increase in SALES

[2 marks]

(f) *Interpret the coefficient of determination.*

[2 marks]

R² = 0.665. We can conclude that 66.5% variation in SALES can be explained by all the 3 variables; about 33.5% variation cannot be explained.

(g) *Has all the assumptions of the analysis been met? If not explain how they can be assessed.*

[2 marks]

- **There is no multicollinearity as VIF < 10 and Tolerance > 0.1 also Conditional index is LESS than 30**
- **The histogram indicates normal distribution with mean = 0 and SD = 1**
- **P-P plot shows the errors are normally distributed**
- **Partial plots indicates the variables are linearly related to Y**
- **There is no outlier cases**
- **No autocorrelation as the DW value is 1.950. It is in the region of 1.5 to 2.5.**

- **Constant variance cannot be ascertained as the plot of studentized residual and SALES is NOT given**

(h) *Write a short report on how the Syarikat Telekom Malaysia Berhad can interpret the results.*

[2 marks]

Based on the results all 3 variables are significant. Based on the Standardized Beta values, AIRPLAY has the most influence ($\beta = 0.512$) followed by ADVERTS ($\beta = 0.511$) and ATTRACT ($\beta = 0.192$) indicating that and ADVERTS are equally important in predicting SALES. To increase SALES, the company needs to encourage the radio stations to play many times the songs and to do this they also need a good advertising budget. The attractiveness of the band is not as important compared to the other 2 independent variables.