# MARKING SCHEME

# ATW 202 BUSINESS RESEARCH METHODS

**Part 1 Objective Answers**

| | | | | |
|---|---|---|---|---|
| 1 | C | | 21 | A |
| 2 | D | | 22 | A |
| 3 | D | | 23 | B |
| 4 | C | | 24 | A |
| 5 | D | | 25 | B |
| 6 | B | | 26 | B |
| 7 | B | | 27 | A |
| 8 | D | | 28 | B |
| 9 | B | | 29 | B |
| 10 | B | | 30 | B |
| 11 | C | | 31 | A |
| 12 | A | | 32 | A |
| 13 | B | | 33 | B |
| 14 | A | | 34 | A |
| 15 | A | | 35 | B |
| 16 | D | | 36 | B |
| 17 | B | | 37 | A |
| 18 | D | | 38 | A |
| 19 | C | | 39 | B |
| 20 | B | | 40 | B |

## Question 2

    a.      **Causal study** as the manager wants to see the cause and effect of interest rate on savings.

    b.      **Experimental**, the manager will manipulate the interest rates.

    c.      **Field Experiment** as it is done in the normal setting with manipulation.

    d.      **Longitudinal** as data will be collected before and after.

    e.      **Bank,** the manager will study the effect based on the 4 banks.

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

## Question3

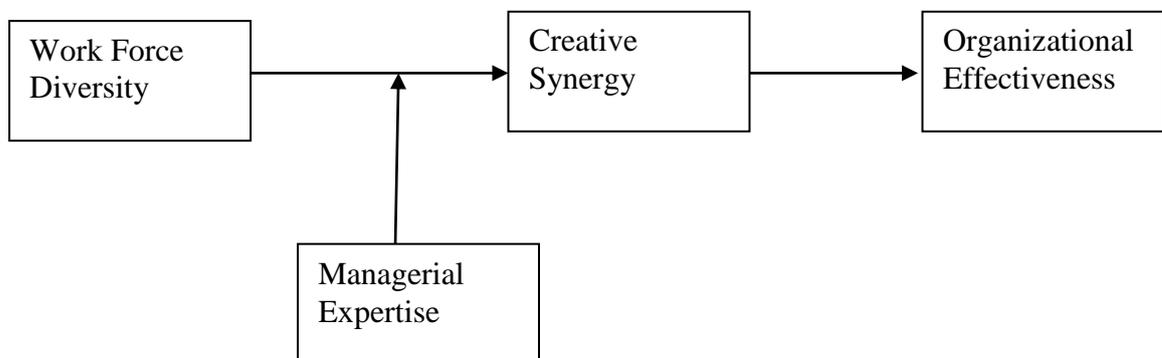*Based on the explanation given above, answer the following questions.*

(a)    What is the research problem?

**What are the factors influencing the organizational effectiveness?**

[ 2 markah ]

(a)    Bentuk satu kerangka teori yang bersesuaian.

**[ 4 markah ]**



(c)    Develop 4 hypotheses to be tested.

[ 4 marks ]

**H₁**    **Work force diversity has a positive effect on Creative synergy.**

**H₂**    **Creative synergy has a positive effect on organizational effectiveness.**

**H₃**    The relationship between workforce diversity and organizational effectiveness is mediated by creative synergy.

**H₄**    The positive relationship between workforce diversity and creative synergy will be stronger when managerial expertise is higher

## Question 4

## Please use your judgement

*By giving **suitable examples**, explain each of the following:*

*(a)    Are concepts and constructs different? Explain.*

*Concepts are specific meanings we attach to an attribute we want to measure. Constructs are usually a combination of smaller concepts and differs from researcher to researcher.*

*[ 4 marks ]*

*(b)    Distinguish between proposition and hypothesis by giving appropriate examples.*

*[ 4 marks ]*

*Propositions are statements that are done at the conceptual level whereas hypotheses are at the empirical level when it becomes testable.*

*(c)    What are the differences between the rating scale and the ranking scale?*

*[ 4 marks ]*

*Rating scale is utilized to solicit answers of agreement/disagreement on several statements whereas ranking scales are when we comare osme chracteristics or attributes.*

*(d)    Explain what content validity is and how it can be assessed?*

*[ 4 marks ]*

*Extent to which we are capturing all the dimensions of a particular construct.*
*Literarture review and expert validation is used to assess this issue.*

*(e)    Differentitate random and non-random sampling and when each is suitable to be used.*

*Random sampling is when the probability of being chosen is known and not equal to 0. Non-probability sampling is when the probability of being chosen is unkonown. Probability sampling is good for generalizability while non-probability is done when it is for exploratory or constrained by some factors.*

## Question 5

Based on the output given, answer the following questions.

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

[ 2 marks ]

**Yes, the F = 35.377 and Signif of F = 0.000 < 0.01 so we can conclude that all the 4 variables together can significantly explain the variation in SUBSCRIPTION.**

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

[ 2 marks ]

**SUBSCRIPTION = -5.733 + 0.008 (POPOULATION) + 0.051 (ADVERTISEMENT) + 1.097 (INCOME)**

*(c)*    *Develop and test these 4 hypotheses at the 1% level:*

- *There is a positive relationship between **POPULATION** and **SUBSCRIPTION***
- *When **ADVERTISEMENT** increases the **SUBSCRIPTION** will also increase*
- *There is a positive relationship between **INCOME** and **SUBSCRIPTION**.*

[ 6 marks ]

| Variable | t-value | p value | | Decision |
|---|---|---|---|---|
| $H_0$   $b_1 = 0$ | | | | |
| $H_1$   $b_1 > 0$ | | | | |
| POPULATION | 4.157 | 0.000 | $p < 0.05$ | Reject $H_0$ |
| | | | | |
| $H_0$   $b_2 = 0$ | | | | |
| $H_1$   $b_2 > 0$ | | | | |
| ADVERTISEMENT | 3.599 | 0.002 | $p < 0.01$ | Reject $H_0$ |
| | | | | |
| $H_0$   $b_3 = 0$ | | | | |
| $H_1$   $b_3 \neq 0$ | | | | |
| INCOME | 4.479 | 0.000 | $p < 0.05$ | Reject $H_0$ |

*(d)*    *If given the values below calculate the expected subscription.*

| | |
|---|---|
| *POPULATION* | *599 000* |
| *ADVERTISEMENT* | *13 500* |
| *INCOME* | *34 700* |

*SUBSCRIPTION = -5.733 + 0.008 (599) + 0.051 (13.5) + 1.097 (34.7)*
*= 37 814*

*[ 2 marks ]*

*(e)     Interpret the coefficient of determination.*

*[ 2 marks ]*

**$R^2 = 0.835$. We can conclude that 83.5% variation in SUBSCRIPTION can be explained by all the 3 variables; about 16.5% variation cannot be explained.**

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

*[ 3 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**
- **Constant variance can also be ascertained as the plot of studentized residual and INTENTION is given**
- **No autocorrelation as the DW value is 1.692. It is in the region of 1.5 to 2.5.**

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

*[ 3 marks ]*

**Based on the results all 3 variables are significant. Based on the Standardized Beta values, INCOME has the most influence ($\beta = 0.446$) followed by POPULATION ($\beta = 0.397$) and ADVERTISEMENT ($\beta = 0.371$) indicating that INCOME is the most crucial factors in predicting SUBSCRIPTION. To increase SUBSCRIPTION, STAR needs to target the for populated cities to increase subscription.**