FACULTY	AGRICULTURE, ENGINEERING AND NATURAL RESOURCES		
SCHOOL	AGRICULTURE AND FISHERY SCIENCES		
DEPARTMENT	ANIMAL PRODUCTION, AGRIBUSINESS AND ECONOMICS		
SUBJECT	RESEARCH METHODOLOGY IN AGRICULTURAL ECONOMICS		
SUBJECT CODE	AER 3782		
DATE	NOVEMBER 2023		
DURATION	**3 HOURS**	**MARKS**	100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER

Examiner: Prof HJ Sartorius von Bach

Internal Moderator: Dr KM Kalundu

This question paper consists of three (3) pages including this front page

Instructions

- Answer all questions
- All questions carry equal marks (20 marks each)
  Please write legibly and number your questions clearly

UNIVERSITY OF NAMIBIA EXAMINATIONS

QUESTION 1

a) Differentiate between probability sampling and non-probability sampling (2)
b) Differentiate between formal and informal experimental design and provide examples (3)
c) Outline the characteristics that a researcher should keep in mind when deciding on the size of the sample. - (10)
d) What are the characteristics of hypothesis testing? (5)

QUESTION 2

Outline the procedures involved when choosing a researchable topic in the field of agricultural economics. (20)

QUESTION 3

a) What are the dos and don'ts of designing a research instrument such as a questionnaire? (10)
b) Explain the following measures used for field research:
   i. Mail questionnaire
   ii. Personal interview
   iii. Group interview
   iv. Telephone survey
   v. Non participant direct observation (5)
c) What are core issues regarding the formulation of research objectives? (5)

QUESTION 4

a) Why is literature review an important component of a research process? (5)
b) You are asked by an editor of a peer reviewed journal to review a scientific article. Explain how to review an article, leading to the findings and whether it has the properties to be published in a peer reviewed journal. Furthermore, explain also how to be anonymous and how to provide suggestions rather than instructions. (10)
c) Define, explain and describe consequences of plagiarism (5)

QUESTION 5

Below, find a text with some references (not necessarily related). You are expected to use the American Psychological Association (APA) style and guidelines to point out (i) where and (ii) how to correct the style. For each correction, point out the following:

- the line where the mistake was observed,
- the misused style, and
- the corrected version.

Hint: The section is taken out of a journal, no need for you to cross-check references between text and list of references. Only point out where corrections are required in case of publishing APA style. One mark per correction. (20)

Various cycles have been identified by Chin , 1978. Medium term ice core series for example showed that some 300 years ago a little ice age period persisted for several decades and that for the past 100 years, a relatively warm climate pattern was observed. Longer time span series (Emiliani, 1966) showed that about 5 000 and 6 000 years ago, the world experienced its warmest period recorded. Cycles showed that it took about 40 000 to 70 000 years to reach a glacial maximum; the last one was 18 000 years ago. Chin (1978) showed that it only took between 2 000 to 5 000 years to completely destroy the formed continental-sized ice sheet. The more recently reported for Kenya, Brazil, Australia, and other countries. On the other hand, excess precipitation showed increased frequency and intensity of extremes (Cohen et. al., 2014). Findings shows cyclic patterns, with rainfall explained as single or double cycles (Du Toit & O'Connor, *2014*). These cyclical patterns are used in decision-making, as in the case of Australia, where pastoralists use seasonal climate forecasting as main driver for profitability (Cobon and Toombs, 2013). These patterns are not fully investigated for Namibia, as the South Atlantic convergence zone is less predictable than the intertropical convergence zone and that weather is affected by distance from oceans and altitudes (Barreiro et. al. 2002,2005;Taschetto & Wainer, 2008). The statistical approach uses less computing resources and are based on relationships between the predicted and predictor variables (Shukla & Mooley, 1987, Krishnamurti *et. al.*, 2002, *Klotzbach & Gray*, 2003, Sahai *et. al.*, 2003, Thomas Nicolas Annamalai *et. al.*, 2005, Duffy *et. al.*, 2006, Kim & Kim, 2010, Ye *et. al.*, 2015, and Gerlitz *et. al.*, 2016), while the dynamical approach is based on predicted rainfall as consistent with other climate variables (Doblas-Reyes *et. al.*, 2006, Saha *et. al.*, 2006). Generally, studies have moved towards dynamical seasonal prediction (Misra, 2004, Pattanaik & Kumar, 2010, Yuan *et. al.*, 2011; Liu *et. al.*, 2013, *Becker et. al.*, 2014, Siegmund *et. al.*, 2015, Jia *et. al.*, 2015, and Osman & Vera, *2017*).

REFERENCES

Anderson, T.M., Ritchie, M.E. & Michael McNaughton., (2007). Rainfall and soils modify plant community response to grazing in Serengeti National Park. *Ecology* 88 (5) 1191–1201.

Annamalai, H.J.Potemra, R. Murtugudde, & McCreary, J.P. (2005). Effect of preconditioning on the extreme climate events in the tropical Indian Ocean. J. Climate, 18, 3450–3469.

Arora, V.K., (2002). *The use of the aridity index to assess climate change effect on annual runoff. J. Hydrol.*, 265, 164–177.

Barreiro, M., Chang, P. & Saravanan, R. (2002). Variability of the South Atlantic convergence zone simulated by an atmospheric general circulation model. *J Climate* 15, 745-763.

Becker, E., van den Dool, H. & Zhang, Q. (2014). Predictability and forecast skill in NMME. J. Climate, 27, 5891–5906.

Bollerslev T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of Econometrics*, 31(3), 307–327.

Box, G.E.P. & Jenkins G.M. (1976). *Time Series Analysis*: Forecasting and Control; Holden Day: San Francisco, CA, USA.

Chin W.Q. (1978). Drought cycles and weather patterns, ***Canadian Water Resources Journal***, 3 (1) 68-84.

Cobon, D.H. & Toombs, N.R. (2013). Forecasting rainfall based on the Southern Oscillation Index phases at longer lead-times in Australia. *The Rangeland Journal*, 35, 373–383.

Cohen, J., Screen, J.A., Furtado, J.C., Barlow, M., Whittleston, D., Coumou, D., Francis, J., Dethloff, K., Entekhabi, D., & Overland, J. (2014). Recent Arctic amplification and extreme mid-latitude weather. *Nat. Geosci.* 7, pages 627–637.

Cottrill, A., Hendon, H.H., Lim, E.-P., Langford, S., & Shelton, K. (2013). Seasonal forecasting in the Pacific using the coupled model POAMA-2. *Weather. Forecasting*, 28, 668–680.

Crevits, R. & Croux, C. (2007). Forecasting Using Robust Exponential Smoothing with Damped Trend and Seasonal Components;

THE END