UNIVERSITY OF ESWATINI

FACULTY OF EDUCATION

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND MANAGEMENT

FACULTY OF EDUCATION AND THE INSTITUTE OF DISTANCE EDUCATION FULL TIME AND PART TIME PROGRAMMES

FINAL EXAMINATION PAPER - MAY 2019

BACHELOR OF EDUCATION (B.Ed.) III Full-Time
BACHELOR OF EDUCATION (B.Ed.) III Part-Time

COURSE CODE:	EFM 314/EDF322
COURSE TITLE:	EDUCATIONAL RESEARCH
TIME ALLOWED:	THREE (3) HOURS
INSTRUCTIONS:	1. THIS PAPER IS OF TWO SECTIONS (**A** AND **B**). 2. ANSWER QUESTION **ONE** AND ANY OTHER **ONE** IN SECTION **A** WITH A TOTAL OF 50MARKS 3. ANSWER ANY **TWO** Questions IN SECTION **B** WITH A TOTAL OF 50MARKS 4. MAKE USE OF THE ATTACHED STATISTICAL FORMULAS AND TABLES WHERE NECESSARY
TOTAL MARKS:	100

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISION HAS BEEN GRANTED BY THE INVIGILATOR TO DO SO

SECTION A

1. A research problem titled "Effects of parental education and economic status on children academic achievement in secondary school" was approved by your supervisor as a research proposal.
   Use the above information to answer the following questions.

a. Identify the dependent and independent variables **(3marks)**
b. Briefly state one purpose of the study **(3marks)**
c. Raise two research questions to guide the study **(4marks)**
d. Formulate two hypotheses **(4marks)**
e. Briefly state the delimitation of the study **(4marks)**
f. State any three ethical considerations to be considered when conducting this study **(4½marks)**
g. Identify three areas in which you should review related literature. **(4½marks)**
h. Identify three target respondents for this study? **(3marks)**

Total = (30marks)

2a. Explain the term "qualitative research design" **(8marks)**

b. Table 1 contains types of research instrument and sampling techniques as well as types of research method; namely: quantitative, qualitative and mixed method. Fill in the most appropriate answer in the space provided in Table 1

Table 1: Quantitative, qualitative and mixed methods of research

Research Instrument and Sampling Technique	**Types of Research Method**		
	Quantitative method	Qualitative method	Mixed method
Types of research instrument	i. ii. **(2marks)**	i. ii. **(2marks)**	i. ii. **(2marks)**
Types of sampling techniques.	i. ii. **(2marks)**	i. ii. **(2marks)**	i. ii. **(2marks)**

(12marks)

Total=20marks

3. Explain any four benefits of review of related literature in undergraduate research proposal. **(20marks)**

SECTION B

4. Table 2 below shows the frequency distribution of scores obtained by 32 students in EDF 401

Table 2: Scores of students in EDF 401

Scores	15 – 17	18 – 20	21 – 23	24 – 26	27 – 29	30 – 32	33 – 35
Frequency	1	4	6	9	5	3	4

Use the information above to:

a. Construct a frequency distribution Table to show the following features: Cumulative frequency (Cf), Mid mark (X), $\sum fx$, and $\sum f(X-\overline{X})^2$ **(16marks)**

b. Calculate the mean **(3marks)**

c. Calculate the standard deviation **(4marks)**

d. Find the class boundary of the modal class **(2marks)**

Total = 25marks

5. In a mathematics class comprising 6 boys and 6 girls, an achievement test was conducted for the two groups. The scores obtained by boys and girls were stated in Table 3

Table 3: Achievement Test in Mathematics

Boys	8	8	4	6	2	7
Girls	9	7	6	5	6	8

Use this information to:

a. Calculate the t-test value **(20 marks)**

b. Find the degree of freedom (df) **(2 marks)**

c. Test if there is significant difference in the performance of boys and girls in Mathematics at 0.05level of significance. **(3 marks)**

Total = 25marks

6. The following scores out of 10marks presented in Table 4 were obtained by the same set of students in Economics and Business Studies test.

Table 4: Students scores in Economics and Business Studies

Economics	7	5	8	4	9
Business Studies	5	7	6	5	8

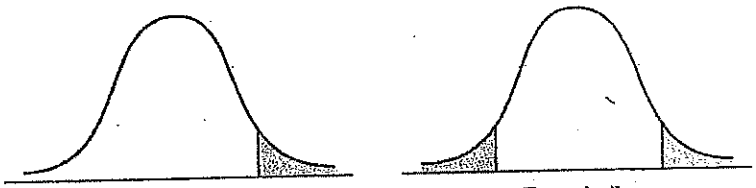
Use the information in Table 4 to

a. Compute the Z-score for the candidate that scored 8 in economics and take the standard deviation to be **1.85** **(6 marks)**
b. Compute the correlation coefficient value for the two sets of scores using Pearson Product Moment Correlation (PPMC) **(17 marks)**
c. Explain if there is a relationship between the performance of students in Economics and Business Studies **(2 marks)**

Total = 25marks

TABLE B.2 THE *t* DISTRIBUTION

Table entries are values of *t* corresponding to proportions in one tail or in two tails combined.

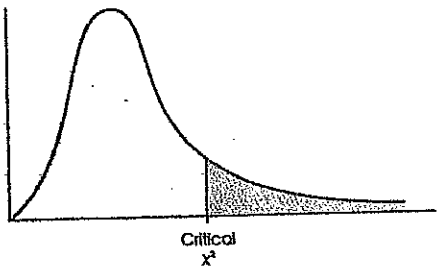


	Proportion in One Tail					
	0.25	0.10	0.05	0.025	0.01	0.005
	Proportion in Two Tails Combined					
df	0.50	0.20	0.10	0.05	0.02	0.01
1	1.000	3.078	6.314	12.706	31.821	63.657
2	0.816	1.886	2.920	4.303	6.965	9.925
3	0.765	1.638	2.353	3.182	4.541	5.841
4	0.741	1.533	2.132	2.776	3.747	4.604
5	0.727	1.476	2.015	2.571	3.365	4.032
6	0.718	1.440	1.943	2.447	3.143	3.707
7	0.711	1.415	1.895	2.365	2.998	3.499
8	0.706	1.397	1.860	2.306	2.896	3.355
9	0.703	1.383	1.833	2.262	2.821	3.250
10	0.700	1.372	1.812	2.228	2.764	3.169
11	0.697	1.363	1.796	2.201	2.718	3.106
12	0.695	1.356	1.782	2.179	2.681	3.055
13	0.694	1.350	1.771	2.160	2.650	3.012
14	0.692	1.345	1.761	2.145	2.624	2.977
15	0.691	1.341	1.753	2.131	2.602	2.947
16	0.690	1.337	1.746	2.120	2.583	2.921
17	0.689	1.333	1.740	2.110	2.567	2.898
18	0.688	1.330	1.734	2.101	2.552	2.878
19	0.688	1.328	1.729	2.093	2.539	2.861
20	0.687	1.325	1.725	2.086	2.528	2.845
21	0.686	1.323	1.721	2.080	2.518	2.831
22	0.686	1.321	1.717	2.074	2.508	2.819
23	0.685	1.319	1.714	2.069	2.500	2.807
24	0.685	1.318	1.711	2.064	2.492	2.797
25	0.684	1.316	1.708	2.060	2.485	2.787
26	0.684	1.315	1.706	2.056	2.479	2.779
27	0.684	1.314	1.703	2.052	2.473	2.771
28	0.683	1.313	1.701	2.048	2.467	2.763
29	0.683	1.311	1.699	2.045	2.462	2.756
30	0.683	1.310	1.697	2.042	2.457	2.750
40	0.681	1.303	1.684	2.021	2.423	2.704
60	0.679	1.296	1.671	2.000	2.390	2.660
120	0.677	1.289	1.658	1.980	2.358	2.617
∞	0.674	1.282	1.645	1.960	2.326	2.576

Table III of R. A. Fisher and F. Yates, *Statistical Tables for Biological, Agricultural and Medical Research*, 6th ed. London: Longman Group Ltd., 1974 (previously published by Oliver and Boyd Ltd., Edinburgh). Adapted and reprinted with permission of the Addison Wesley Longman Publishing Co.

TABLE B.8 THE CHI-SQUARE DISTRIBUTION*

*The table entries are critical values of χ^2.



df	Proportion in Critical Region				
	0.10	0.05	0.025	0.01	0.005
1	2.71	3.84	5.02	6.63	7.88
2	4.61	5.99	7.38	9.21	10.60
3	6.25	7.81	9.35	11.34	12.84
4	7.78	9.49	11.14	13.28	14.86
5	9.24	11.07	12.83	15.09	16.75
6	10.64	12.59	14.45	16.81	18.55
7	12.02	14.07	16.01	18.48	20.28
8	13.36	15.51	17.53	20.09	21.96
9	14.68	16.92	19.02	21.67	23.59
10	15.99	18.31	20.48	23.21	25.19
11	17.28	19.68	21.92	24.72	26.76
12	18.55	21.03	23.34	26.22	28.30
13	19.81	22.36	24.74	27.69	29.82
14	21.06	23.68	26.12	29.14	31.32
15	22.31	25.00	27.49	30.58	32.80
16	23.54	26.30	28.85	32.00	34.27
17	24.77	27.59	30.19	33.41	35.72
18	25.99	28.87	31.53	34.81	37.16
19	27.20	30.14	32.85	36.19	38.58
20	28.41	31.41	34.17	37.57	40.00
21	29.62	32.67	35.48	38.93	41.40
22	30.81	33.92	36.78	40.29	42.80
23	32.01	35.17	38.08	41.64	44.18
24	33.20	36.42	39.36	42.98	45.56
25	34.38	37.65	40.65	44.31	46.93
26	35.56	38.89	41.92	45.64	48.29
27	36.74	40.11	43.19	46.96	49.64
28	37.92	41.34	44.46	48.28	50.99
29	39.09	42.56	45.72	49.59	52.34
30	40.26	43.77	46.98	50.89	53.67
40	51.81	55.76	59.34	63.69	66.77
50	63.17	67.50	71.42	76.15	79.49
60	74.40	79.08	83.30	88.38	91.95
70	85.53	90.53	95.02	100.42	104.22
80	96.58	101.88	106.63	112.33	116.32
90	107.56	113.14	118.14	124.12	128.30
100	118.50	124.34	129.56	135.81	140.17

Table 8 of E. Pearson and H. Hartley, *Biometrika Tables for Statisticians*, 3d ed. New York: Cambridge University Press, 1966. Adapted and reprinted with permission of the Biometrika trustees.

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STATISTICAL FOMULAE

Variance $(S^2)= \frac{\sum f(X-\overline{X})^2}{\sum f}$

Variance $(S^2) = \frac{\sum(X-\overline{X})^2}{N-1}$

Standard deviation (SD) = $\sqrt{\frac{\sum f(X- \overline{X})^2}{\sum f}}$

SD = $\sqrt{\frac{\sum(X- \overline{X})^2}{N-1}}$

Z-score = $\frac{(X-\overline{X})}{SD}$

The Independent-measures t-test =

$\frac{\bar{X}_1- \bar{X}_2}{\sqrt{\frac{S^2}{n_1}+\frac{S^2}{n_2}}}$ OR $\frac{M_1 - M_2}{\sqrt{\frac{S^2}{n_1}+\frac{S^2}{n_2}}}$

$$PPMC(r_{xy}) = \frac{N\sum XY- \sum X\sum Y}{\sqrt{\{N\sum X^2- (\sum X)^2\}\ \{N\sum Y^2- (\sum Y)^2\}}}$$

Spearman's Rank $(r_s) = 1 - \frac{6\sum D^2}{N(N^2-1)}$

$Chi - square(\mathcal{X}^2) = \sum \frac{(f_o - f_e)^2}{f_e}$

$f_e = \frac{f_r \times f_c}{N}$