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UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

FIVE-SEMESTER BACHELOR OF EDUCATION (SANDWICH) PROGRAMME
LEVEL 300, END-OF-SECOND SEMESTER EXAMINATION, JANUARY 2023

5TH JANUARY 2023   EDUCATIONAL STATISTICS   9:30 AM - 11:00 AM

SECTION B
(40 MARKS)

Answer only **TWO** questions in this Section. All questions carry equal marks. Show all your working, where appropriate.

1. You have just graduated from a College of Education. Explain to an untrained teacher, using appropriate examples, **four** reasons why it is important for teachers to study statistics in education.   **(20 marks)**

2.
   i. What is a standard score?   **(2 marks)**

   ii. State **three** features of a Z standard score.   **(6 marks)**

   iii. Describe, using appropriate examples, **three** uses of standard scores in Education.
                                                              (12 marks)

3.
   i. State **four** features of the normal distribution.   **(4 marks)**

   ii. In an entrance examination taken by 1200 students, the results were normally distributed with mean 56 and standard deviation of 8.
   Given that:

   1. $\mu+1\sigma = 0.3413$ (34.13%), $\mu\pm1\sigma = 0.6826$ (68.26%)

   2. $\mu+2\sigma = 0.4772$ (47.72%), $\mu\pm2\sigma = 0.9544$ (95.44%)

   3. $\mu+3\sigma = 0.4987$ (49.87%), $\mu\pm3\sigma = 0.9974$ (99.74%)

a. What is the probability that a student selected at random from the class obtains a score greater than 64? (5 marks)

b. What percentage of students obtained scores more than 72? (5 marks)

c. If the pass mark is 48, approximately how many students passed? (6 marks)

4. The table below shows the performance of 20 students in a course in two quizzes.

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Quiz 1 (X)	11	17	12	15	8	15	16	10	17	12	17	15	12	14	13	15	20	20	12	9
Quiz 2 (Y)	10	14	15	16	12	16	15	15	18	16	18	18	15	16	10	12	20	19	14	11

Given that:

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{nS_x S_Y}$$

$\bar{X} = 14$, $\bar{Y} = 15$, $S_x = 3.24$ and $S_Y = 2.81$)

i. Obtain the Pearson product moment correlation coefficient. (12 marks)

ii. Interpret the correlation coefficient obtained. (2 marks)

iii. State **three** uses of correlation in education. (6 marks)