



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF AGRICULTURAL SCIENCES**  
**DEPARTMENT OF ANIMAL SCIENCE AND FISHERIES**  
2020\_2 EXAMINATION ...

**COURSE CODE:** ANP 513

**COURSE TITLE:** ANIMAL PRODUCTION RESEARCH TECHNIQUE

**CREDIT UNIT:** 2 CU

**TOTAL SCORE:** 70 MARKS

**TIME ALLOWED:** 2 Hours

**INSTRUCTIONS:** ANSWER QUESTION 1 (25 MARKS) AND ANY OTHER THREE (15 MARKS EACH)

- Q1 a What do you understand by the term Research **1½ marks**  
b In broader perspective, expatiate the scientific methods of research. **17 marks**  
c Describe the forms of a well-planned experiment. **6½ marks**
- Q2 a Explain in detail what do you understand by Completely Randomized Design (CRD)” **2 marks**  
b Enumerate the merit and demerit of CRD. **9 marks**  
c What do you understand by “CRD with some missing data”. **4 marks**
- Q3 a Explain randomization in latin square design. **1 mark**  
b Give the advantages and disadvantages of latin square design. **7 marks**  
c State the methods for comparing all possible pairs of means when significant difference exists. **7 marks**
- Q4 a What do you understand by Artificial Insemination (AI). **2 marks**  
b Enumerate the merits and demerits of AI. **7 marks**  
c Give six (6) signs of Heat. **6 marks**
- Q5 Briefly explain the following:  
i Radioscopy **5 marks**  
ii Calorimetry **5 marks**  
iii Spectrometry **5 marks**

6 If an animal scientist sets out to investigate the effect of four plant protein sources on the weight gain of broiler chicken reared in a housing system located on a slope for eight weeks and obtained the data below. Test whether the treatment (plant produce sources) and sloping of the house significantly affected the weight of the birds.

A <sub>40</sub>	D <sub>62</sub>	B <sub>52</sub>	C <sub>48</sub>
C <sub>51</sub>	B <sub>59</sub>	A <sub>56</sub>	D <sub>58</sub>
D <sub>60</sub>	C <sub>61</sub>	B <sub>55</sub>	A <sub>49</sub>
B <sub>50</sub>	A <sub>49</sub>	D <sub>60</sub>	C <sub>53</sub>

- i Provide the analysis of variance (ANOVA) Table
- ii Write in two sentences the inference(s). (15marks)