JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR DEGREE

RESIT MAIN CAMPUS

COURSE CODE: SCS 114

COURSE TITLE: INTRODUCTION TO SPREADSHEET AND DATABASE

EXAM VENUE: LAB 1 **STREAM: BED**

DATE : 04/05/ 2016 **EXAM SESSION: 9.00 – 11.00 AM**

TIME: 2.00 HOURS

INSTRUCTIONS

1. **Answer Question 1 (Compulsory) and ANY other TWO questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

Question 1 [30 marks]

a) Define the following terms: **(27 marks)**
   i) Database
   ii) File
   iii) Record
   iv) Field
   v) Table
   vi) Cell
   vii) Worksheet
   viii) Workbook
   ix) Database Management System (DBMS)

b) Using cell range in important when capturing data in excel. What is the difference between the following cell range in reference to the figure below   **(3 marks)**
A1:B4
$A$1:$B$4

	A	B
1	12	6
2	19	8
3	15	10
4	16	20

Question 2 [20 marks]

a) Discuss the role of the following formulas in excel
   a. =MODE()   **(2 mark)**
   b. =AVERAGE()   **(2 mark)**
   c. =TOTAL()   **(2 mark)**
   d. =SUM()   **(2 mark)**
   e. =MEDIAN()   **(2 mark)**

b) Describe the steps you would follow to create a 3-D Column chart that displays comparison of student performance in different courses based on the data provided in the figure below   **(5 mark)**

	A	B	C	D	E	F	G	H	I	J
1			Courses							
2	Student	SCS114	SCS112	AKI 130	AND 110	Total				
3	Grace	90	88	90	88	356				
4	Benson	77	78	77	78	310				
5	Shelly	78	76	39	76	269				
6	Adala	92	56	92	56	296				
7	Tamara	88	54	88	54	284				
8	Janet	68	73	68	22	231				
9	Mercy	44	76	44	76	240				
10	Sabina	30	78	36	78	222				
11	Millie	56	56	56	56	224				
12	Abwao	56	49	56	49	210				
13										
14	Total	679	684	646	633					
15	Median	72.5	74.5	62	66					
16	Maximum	92	88	92	88					

c) What is a relational database? Give three examples   **(5 marks)**

Question 3 [20 marks]

a) Identify the differences between relational and non-relational databases   **(7 marks)**

a) What is the difference between data and information?   **(5 marks)**

b) A cell style is defined as a collection of formats (font size, font color, etc) that can be used to quickly format cells in a worksheet. Discuss the steps you would follow to apply a style to the title of your worksheet?   **(8 marks)**

Question 4 [20 marks]

a) An undergraduate first year student taking SCS 114 – Spreadsheet and database was investigating the relationship between time spent revising prior to a test and performance in history exam. The student analyzed the captured data using SPSS and obtained the following results. Answer the following questions

SUMMARY OUTPUT

```
         Regression Statistics
         Multiple R              0.9
         R Square                0.9
         Adjusted R Square       0.9
         Standard Error          5.3
         Observations            3
```

ANOVA

	df	SS	MS	F	Sig F
Regression	1	27419.5	27419.5	943.2	8.9E-13
Residual	12	348.8	29.07069758		
Total	13	27768.3			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	24.1	3.3	1.2	0.2	-3.14	11.4
Minutes	15.5	0.5	30.7	8.9E-13	14.4	16.6

RESIDUAL OUTPUT

Observation	Predicted Student Scores	Residuals
1	19.67	3.32
2	35.17	-6.17
3	50.68	-1.68
4	66.19	-2.19

i) What does the value of R Square stand for? **(3 marks)**

  ii) Identify the independent and dependent variables. **(4 marks)**

  iii) Describe the relationship between Student Score and Minutes **(4 marks)**

  iv) What is the predicted score for a student who does not revise? **(2 marks)**

  v) Are the results significant? Explain? **(3 marks)**

b) Prior to running a regression analysis a student was advised to run a correlation analysis which produced a correlation matrix below.

	Scores	Minutes
Scores	1	
Minutes	0.99	1

Interpret the output above and explain the significance of the relationship **(4 marks)**

Question 5 [20 marks]

a) Identify the difference between correlation Analysis and Regression Analysis. Identify any two important metrics to examine in each. Which one among the two would you choose to investigate the effect of eating food on weight gain? **(10 marks)**

b) You have just been offered a job in a start up company in Nairobi immediately after completing your degree. Your boss learnt that you did a course on database. The organization plans to develop a database management system. The organization must begin with carrying out a needs analysis process. What type of questions should the needs analysis address? **(10 marks)**