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**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**THIRD YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE ANIMAL SCIENCES**

**2016/2017 ACADEMIC YEAR**

**REGULAR**

**COURSE CODE: SES 3311**

**COURSE TITLE: Farm Power and Machinery**

**EXAM VENUE: STREAM: BSc. Animal Sciences**

**DATE: EXAM SESSION:**

**TIME: 2 HOURS**

**Instructions:**

1. **Answer ALL questions in section A and ANY other 2 Questions in section B.**
2. **Candidates are advised not to write on question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A [30 MARKS]**

**Answer ALL questions from this Section.**

1. Define the following terms:
   1. Mechanized Agriculture **(2 Marks)**
   2. Compression ratio **(2Marks)**
   3. Mean effective Pressure **(2Marks)**
   4. Torque **(2Marks)**
2. Explain the importance of a cooling system in an IC engine **(4 Marks)**
3. Describe three main properties that determine the quality of fuel **(3 Marks)**
4. Discuss two classifications of farm power used in agricultural operations **(2 marks)**
5. Explain two classifications of heat engines **(4 marks)**
6. Discuss three construction features of IC engine **(3 marks)**
7. Explain why adoption of wind power on many farms is low? **(2 marks)**
8. Describe advantages of air cooled engines **(4 Marks)**

**SECTION B [40 MARKS]**

**Answer ANY TWO questions from this Section.**

1. Discuss the advantages and disadvantages of the following sources of power?
2. Animal power? ( 10 marks)
3. human power ( 4 marks)
4. mechanical power ( 6 marks)
5. Discuss the following:
6. The functions of power transmission system **(4marks)**
7. Requirements of an efficient cooling system **(4 marks)**
8. Functions of lubrication  **(4 marks)**
9. Two stroke cycle diesel engine and four stroke cycle diesel engine **(8 marks)**
10. a. On the basis of structural design, tractors are classified into three classes. Discuss?**(6 marks)**
11. Discuss three main types of air cleaner used in tractors **(14 marks)**
12. With an aid of a diagram explain the fuel supply system in spark ignition engine**(20 Marks)**