NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, NnamdiAzikiwe Expressway, Plot 91, Cadastral Zone, Jabi, Abuja
FACULTY OF SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCE

JANUARY/FEBRUARY2018 EXAMINATION

COURSE CODE: **PHY310**
COURSE TITLE**: ELECTRONICS II**

COURSE UNIT: 2 Credit Units

TIME: 2 hours

INSTRUCTION: Answer question one (1) and any three (3) questions

1. a) Why do we called field effect transistors (FET) as unipolar devices? (4 MARKS)

b) Compare and contrast between field effect transistors (FET) and Bipolar Junction Transistor (BJT). (4 MARKS)

c) Describe in detail the operation of the junction field effect transistor (JFET).

(8 MARKS)

d) Why are junction field effect transistors difficult to manufacture?(4 MARKS)

e) List five advantages junction field effect transistors have over bipolar junction transistors. (5 MARKS)

2. a) Why does the MOSFET not have a PN junction like the JFET? 3 MARKS

b) How many different types of MOSFETs are there? Sketch and label all of them. 12 MARKS

3. a) what is an amplifier?List five different categories of amplifiers (7 MARKS)

b) List the idealized parametric quantities of an operational amplifier. (2 MARKS)

c) What is a push-pull amplifier? And why do they require complementary or matched active circuit elements? (4 MARKS)

4. a) what are common emitter, common base and common collector amplifiers classifications?

(3 MARK)

b) Common base amplifiers are best suited for very high frequency work. Give two good reasons why this is so?

(12 MARKS)

Q5. a) State four merits and four demerits of class A amplifier (4 MARKS)

b) List five misconceptions of the class A amplifier. (5 MARKS)

c) The illustration below shows a closed loop amplifier. Which feedback method is being applied? (2 MARKS)