**SREE NARAYANA COLLEGE, Punalur.**

**DEPARTMENT OF PHYSICS**

Model Test **2021**

PY1551.3 –Electronics

Time: 3 Hours Max. Marks: 50

**Section A** *[Answer* ***ALL*** *questions. Each carries one mark]*

1. What is rectifier?

2. Define stability factor.

3. What is bandwidth?

4. Write a note on Phase distortion?

5. Distinguish between positive and negative feedback.

6. What is modulation?

7. Define modulation index.

**SECTION B [***Answer any six questions. Each question carries* ***TWO*** *marks****]***

8. Explain the working of a zenor Diode.

9. Distinguish between FM and AM.

10. Explain Thevinens theorem with proof.

11. Explain Hatley oscillator .

12. Explain Barkhausen criterian for oscillations.

13. Explain fixed bias give its advantages and disadvantages.

14. Explain the working of a push-pull amplifier.

15. Distinguish between class A class B and class C amplifier.

**SECTION C** *[Answer any Four questions. Each question carries* ***FOUR marks.****]*

16. When the base current in a common emitter transistor is 15µA the collector current is

1.875 mA, at constant collector-emitter voltage. Find the value of β.

17. Derive an expression for Ripple factor of a full wave rectifier.

18. The voltage gain of an amplifier is 100. The amplifier is provided with a 10% negative

feedback in series with the input. Calculate the new voltage gain.

19. In a frequency modulator a carrier wave of frequency 100 MHz is used. If the modulating

signal frequency id 10 KHz and the maximum frequency deviation is 50 KHz. Calculate the

modulation index.

20. For a transistor β is 100 times α. Find the value of α and β.

21. Find the current amplification factor of a transistor in the common base connection. Given

that the collector current is 1.425 mA when the emitter current is 1.5 mA at constant Vcb.

**SECTION D** *[Answer any One question. Carries* ***Fifteen*** *mark]*

22. (a)Derive an equation for the amplitude modulated wave and show that it consist of three frequencies.

(b) Derive an equation for the power contained in amplitude modulated wave.

23. Derive and expression for the gain of a feedback amplifier. What are the advantages of negative feedback?