12. Define a Show that a is always less than unity. 14. Draw the output characteristics of CE translator configuration and mark the

SECTION -- C

Time: 3 Hours

Reg. No. :

Name :

a) CC

c) CE

iii) AJFET is a

amplifier.

a) Dual

c) Symmetrical

a) Current

a) Avoid voltage gain drop

c) Both current and voltage

M 9934 V Semester B.Sc. Degree (CCSS-Reg./Supple./Imp.) Examination, November 2015 Core Course in Physics 5B09 PHY : BASIC ELECTRONICS (2011 and Earlier Admission) Max. Weight: 30 SECTION - A Choose the correct answer. Each question carries a weightage of 1. 1. i) For highest power gain, one would use configuration. b) CB d) None of the above ii) The purpose of emitter capacitor (capacitor across R_E) is to_ b) Forward bias the emitter c) Reduce noise in the amplifier d) None of the above driven device. b) Voltage d) None of the above iv) A 2 transistor class B power amplifier is commonly called _____

b) Push-pull

d) Differential

(W = 1)

2. i) The value of negative feedback fraction is always b) More than 1 a) Less than 1 d) None of the above c) Equal to 1 ii) The Op-amp can amplify b) dc signals only a) ac signals only c) Both ac and dc signals d) Neither dc nor ac signals is a fixed frequency oscillator. a) Phase shift oscillator b) Hartley oscillator c) Colpitt's oscillator d) Crystal oscillator iv) If the doping level is increased, the breakdown voltage of the zener a) Remains the same b) Is increased (W = 1)c) Is decreased d) None of the above SECTION - B Answer any six. Each question carries a weightage of 1. 3. What do you understand by stabilisation of operating point? 4. What are the limitations of h-parameters? 5. Define the saturation current and pinch-off voltage for a JFET. Sketch the output characteristics of a JFET. 7. List any four advantages of JFET. 8. What is the importance of JFET? 9. What is the difference between zener diode and common diode? $(6 \times 1 = 6)$ 10. What is a fullwave rectifier?

SECTION-C

Answer any nine. Each question carries a weightage of 2.

- 11. Describe the potential divider method in detail.
- 12. Define α . Show that α is always less than unity.
- 13. Explain the concept of positive feedback.
- 14. Draw the output characteristics of CE transistor configuration and mark the different regions.
- 15. Explain operating point.

- 16. Explain AC load line.
- 17. Explain n-channel JFET.
- 18. How JFET acts as an amplifier?
- Write a short note on zener regulator.
- 20. Explain Op-amp integrator.
- 21. Explain the frequency response of a transistor amplifier.
- 22. Explain:
 - i) Shorted-gate drain current.
 - ii) Pinch off voltage.
 - iii) Gate-source cut off voltage.

(9×2=18)

SECTION - D

Answer any one. Each question carries a weightage of 4.

- 23. Explain with diagram the working of Colpitt's oscillator.
- Describe a Common Emitter transistor amplifier. Draw necessary figures and graphs. (1x4=4)