

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2015-16)

SUBJECT CODE :15PH/MC/EL64

B.Sc. DEGREE EXAMINATION APRIL 2018
BRANCH III - PHYSICS
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : ELECTRONICS II
TIME : 3 HOURS.

MAX. MARKS :100

SECTION – A

ANSWER ALL QUESTIONS:

(30X1=30)

I. CHOOSE THE CORRECT ANSWER:

- V = IR is
a) Ohms law b) Kirchoff's law c) De Moiverer's law
d) Demorgan Law
- $\sum I = o$ is
a) Kirchoff's 1st law b) Kirchoff's 2nd law c) De Morgans law
d) Demoievere's law
- Voltage amplifier amplifies
a) Voltage b) current c) power d) frequency
- Gain of amplifier is
a) Output voltage b) Output /Input c) Input d) Input/output
- Bandwith of amplifier is
a) $f_H - f_L$ b) $f_L - f_H$ c) f_L d) f_H
- Intrinsic stand of f ratio is
a) $\frac{Rb_1}{Rb_1 + Rb_2}$ b) $\frac{Rb_2}{Rb_1 + Rb_2}$ c) Rb_1 d) Rb_2
- UJT is
a) Unijunction Transistor
b) Field effect Transistor
c) Metal Transistor
d) Single Transistor
- CMRR is a) Common mode Rejection Ratio
 b) Common mode
 c) Rejection Ratio
 d) Common Rejection

9. The output of op-amp inverting adder is
 a) (V_1+V_2) b) $-(V_1+V_2)$ c) V_1 d) V_2
10. Relaxation oscillator produces
 a) Sawtooth waves b) Sine waves c) Square wave d) Wave
11. Advantages of negative feedback amplifier is
 a) Gain and stability is increased.
 b) decreased gain
 c) decreased stability
 d) increased frequent
12. Frequency is measured in
 a) Hertz b) Secs c) farad d) Henry
13. Amplification factor of JFET is
 a) $r_{p}y_n = k$ b) $r_p = \mu$ c) r_p d) μ
14. Opamp has input impedance
 a) High b) low c) medium d) zero
15. Faithfull amplification is
 a) 100% b) 80% c) 60% d) 40%

II. FILL IN THE BLANKS:

16. Phase shift oscillator produces _____ waves.
 17. JFET is _____
 18. UJT is _____
 19. Power amplifier amplifies _____
 20. BA is equal to one is _____ Criterion for oscillation

III. STATE WHETHER TRUE OR FALSE:

21. Ohms law is obeyed for linear circuits.
 22. Multistage amplifier has more gain than single stage amplifier.
 23. Relaxation oscillator produces saw tooth waves.
 24. $v = \int_n^{v-6} dt$ is integrator
 25. $v = -kvi$ is sign changer

IV. ANSWER BRIEFLY:

26. State superposition on Theorem.
 27. What is Transistor bias.
 28. Define Pinch off Voltage.
 29. What is negative resistance in UJT.
 30. What is op amp differentiator.

SECTION – B**ANSWER ANY FIVE QUESTIONS:****(5X 5 = 25)**

31. Explain RC coupled amplifier.
32. Discuss working of UJT oscillator
33. Find the value of β if $\alpha = 0.9$, $\alpha = .98$, $\alpha = .99$,
34. Intrinsic stand off ratio for UJT is 0.6. If the Interbase resistance is 10ohm,
What are the values of R_{B1} and R_{B2} .
35. Trans conductance of FET used as voltage amplifier is 3000 Micrombas and
drain resistance is 10 kilogram. Calculate – voltage gain of amplifier.
36. In op-amp differentials square are input is applied to differentiator circuit. Find
the out put voltage if input goes from 0v to 5v in 0.1ms.
37. When V_{GS} of JFET changes from -3.1 V to -3 V, the drain – current changes
from 1 m A to 1.3 m A. What is value of Trans conductance.

SECTION C**ANSWER ANY THREE QUESTIONS:****(3X15= 45)**

38. Explain a) Transfer b) Thevenin c) Norton's theorems
39. Explain JFET working as a) Amplifier b) I-V characteristics of JFET with
parameters.
40. Discuss UJT characteristics
41. Explain op-amp as a) Adder b) Subtractor c) Differentiator and d) Integrator
42. How is simultaneous equation solved by using op-amplifier.
