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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc. PHYSICS

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
V	PART - III	CORE	U21PH508	FUNDAMENTALS OF ELECTRONICS

Date & Session: 26.04.2025/AN

Time: 3 hours**Maximum: 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	The output voltage of an ideal voltage source is _____. a) Zero b) constant c) depend on RL d) depend on RI
CO1	K2	2.	There are _____ h parameter of transistor. a) 2 b)3 c) 4 d)5
CO2	K1	3.	A zener diode is used as _____. a) an amplifier b) rectifier c) an oscillator d) a voltage regulator
CO2	K2	4.	The most widely used rectifier is _____. a) half wave rectifier b) centre tap full-wave rectifier c) bridge full wave rectifier d) none of these
CO3	K1	5.	Transformer coupling is used for _____ amplification. a) power b) voltage c) current d) none of these
CO3	K2	6.	In p channel JFET, the charge carriers are _____. a) electrons b) holes c) both (a) and (b) d) none of these
CO4	K1	7.	The gain of an amplifier with feedback is known as _____. a) Resonance b) open loop c) Closed loop d) sharpness
CO4	K2	8.	The output impedance of an emitter follower is _____. a) High b) very high c) almost zero d) low
CO5	K1	9.	The op-amp can amplify _____. a) ac signal only b) dc signal only c) both ac and dc signals d) neither dc nor ac signals
CO5	K2	10.	For an op-amp with negative feedback the output is _____. a) equal to input b) increases c) feedback to inverting input d) feedback to non-inverting input

Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	11a.	State and explain Thevenin theorem. (OR)
CO1	K3	11b.	Illustrate Norton's theorem with a suitable diagram.
CO2	K3	12a.	Describe the characteristics of a PN Junction diode. (OR)
CO2	K3	12b.	Discuss the action of a Zener diode as a voltage regulator.
CO3	K4	13a.	With a neat diagram, explain the working of NPN transistor. (OR)
CO3	K4	13b.	Deduce β . Show that $\beta = \alpha / 1 - \alpha$.
CO4	K4	14a.	What are the Brakhauson conditions for oscillation? (OR)
CO4	K4	14b.	What is a Clipper? Analyse (i) Positive Clipper (ii) Biased Clipper.
CO5	K5	15a.	Discuss the slew rate of an OP-amp and also explain response of an OP-amp. (OR)
CO5	K5	15b.	Describe the operation of an inverting OP-Amp.

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	16a.	Illustrate constant voltage and current sources with a neat diagram (OR)
CO1	K3	16b.	State and explain maximum power transfer theorem.
CO2	K4	17a.	Describe an experiment to determine the V – I characteristics of Zener diode. (OR)
CO2	K4	17b.	With a neat sketch, analyse the working of Full Wave bridge rectifier. Derive an expression for the efficiency of a full wave rectifier.
CO3	K4	18a.	With a neat sketch explain the working and parameter of JFET. (OR)
CO3	K4	18b.	Analyse the construction and operation of Push – Pull amplifier with neat diagram.
CO4	K5	19a.	Describe the construction and Working of an Astable multivibrator. (OR)
CO4	K5	19b.	Explain the construction and Working of a Hartley amplifier.
CO5	K5	20a.	Determine the voltage gain of an inverting amplifier and Non inverting amplifier. (OR)
CO5	K5	20b.	Discuss the operation of OP-Amp as an integrator and differentiator.