

المستوى الثالث

علوم المواد

د. الكتروليت في تانتا

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF PHYSICS

FINAL EXAMINATION FOR FRESHMEN (THIRD LEVEL) MATERIAL SCIENCE STUDENTS (SEMESTER 2)

شعبة علوم المواد طلاب المستوى الثالث

1969

COURSE TITLE:

ANALOG ELECTRONICS

COURSE CODE: MS3252

الالكترونيات تناظرية

DATE:

JUNE 2017

TERM: SECOND

TOTAL ASSESSMENT MARKS: 150

TIME ALLOWED: 2 HOURS


Answer the following questions:-

- 1- Calculate the necessary capacitor to design a power supply 10 V, that can supply a resistor 100 Ω , if the ripples must not exceed 0.1 volt. Draw the circuit.
- 2- a- What we mean by saturated transistor and cutoff transistor.
b- A transistor circuit with the following $R_C = 5 \text{ K}\Omega$, $R_E = 500 \Omega$, $V_{CC} = 15 \text{ V}$, what is the ratio between divider resistors necessary to saturate the transistor ? Draw the circuit.
- 3- a- Compare between JFET, MOSFET, SCR and Triac.
b- Draw a circuit to control the power in heater.
- 4- a- Explain a circuit to protect a load against over voltage.
b- Draw a circuit to give positive pulses. Explain your drawing.

With my best wishes

Examiners

Prof. Mostafa K, Elnimr

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS		
	EXAMINATION OF (LEVEL THREE) STUDENTS OF PHYSICS		
COURSE TITLE:	Mathematical physics 3		COURSE CODE: PH 3264
DATE: 8/6/2017	FINAL TERM EXAM	SECOND TERM EXAM	TOTAL ASSESSMENT MARKS: 100 TIME ALLOWED: 2 HOURS

Answer the following questions:

First question:- (25 Marks)

- (i) Show that the function $f(z) = x^2 - y^2 + 2ixy$ is differentiable for all values of z .
- (ii) Find the transformer matrix L corresponding to a rotation of the coordinate axis through an angle θ about the e_3 - axis.

Second question: - (25 Marks)

-The sample of five values for the weight of different student given as: 2, 3, 5, 8, 9.

- (i) Find ; the geometric mean, and harmonic mean.
- (ii) Find ; the sample variance and sample standard deviation of the data.

Third question:- (25 Marks)

- The student of fourth year at physics department selected random and their height and weights are found as follows,

Height (m)	1.6	1.64	1.7	1.8	1.82	1.77
Weight (kg)	75	80	89	95	93	90

Calculate the sample correlation between the heights and weights.

Fourth question:-

(25 Marks)

Find the Fourier series expansion of the function $f(x) = x^2$ for, $0 < x \leq 2$.

EXAMINERS	DR. Atef Elbendary
	أطيب التمنيات بالتوفيق

