

	MINISTRY OF EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY UNIVERSITAS NEGERI JAKARTA FACULTY MATHEMATICS AND KNOWLEDGE KNOWLEDGE NATURAL MAJOR PHYSICS & EDUCATION PHYSICS Campus A UNJ Rawamangun, G-d. Hasjim Asjarie Lt. 5 Jl. Rawamangun Advance No. 1 Jakarta 13220 Tel. 021-29266285/29266284	EXAM END SEMESTER 118	
		Physics Mathematics II	
		Date and time	Monday, 12 June 2023
		O'clock	10.00 - 11.40
		Study Program	Education. Physics & Physics
		Characteristic Exam	Closed book
Lecturer	Prof. Dr. I Made Astra Prof. Dr. Mangasi AM Dr. Teguh B. Prayitno Handjoko Permana M.Sc		

Notes: **Closed book.**

Can bring paper *written notes hand* 1 size sheet A4.

No can open HP/Gadget/Laptop

1. Find it transformation Fourier from Suite finite wave.

$$f(t) = \begin{cases} \cos \omega_0 t, & |t| \leq a \\ 0, & |t| > a \end{cases}$$

Which requested;

- a. Search transformation Fourier his
 - b. Painting relationship $f(t)$ to t
2. Determine the potential equation in the rectangular area $0 \leq x \leq 20$ and $0 \leq y \leq 40$, if the sidespart on given potential constant 110 volts whereas the other side is grounded
 3. Determine is function $u(x, y) = e^x \cos y$ is function harmonics? If yes, make it complex function $f(z)$ his
 4. Count the following integral, for C a spoked circle finger 1 opposite direction needle O'clock

$$\oint_C \frac{z^6}{(2z-1)^6} dz$$