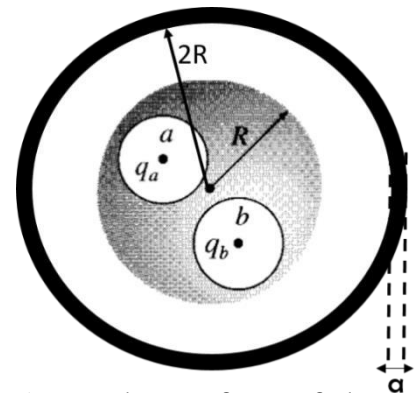
	MINISTRY EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY UNIVERSITAS NEGERI JAKARTA FACULTY MATHEMATICS AND KNOWLEDGE KNOWLEDGE NATURAL MAJOR PHYSICS & EDUCATION PHYSICS Campus A UNJ Rawamangun, G-d. Hasjim Asj'arie Lt. 5 Jl. Rawamangun Muka No. 1 Jakarta 13220 Tel. 021-29266285/29266284	EXAM MIDDLE SEMESTER 118	
		ELECTRICITY MAGNETS	
		Date and time	Tuesday, 28 March 2023
		O'clock	10.00-11.40 WIB
		Study Program	Physics & Education Physics
		Characteristic Exam	Open Book
		Lecturer	Dr. Umiatin, M.Si Riser Fahdiran, M.Sc Prof. Dr. Agus Setyo Budi, M.Sc Haris Suhendar, M.Sc

1. A conducting ball with radius R has 2 (two) fruit hole shaped ball with each –each finger – finger as big as a and b . Ball conductor the surrounded by ball conductor concentric Which larger with an inner radius of $2R$ and fingers – part finger outside as big as $2R+a$.



On part middle hole ball placed load electricity equal to q_a and q_b . Make it count:

- a. Meeting load electricity on surface in hole with fingers – finger a (σ_a), on surface finger hole – radius b (σ_b), on the inner spherical surface (σ_R), on the surface of the radius in the outer ball (σ_{2R}), on surface outermost ball (σ_{2R+a}).
- b. Make it count equality Medan electricity in area:
 - Outside ball conductor ($r > 2R+a$)
 - Between skin ball conductor the outside part $(2R+a) < r < 2R$
 - Room separator distance between ball conductor in And ball outside ($2R < r < R$)
 - In in cavity a
 - In in cavity b
- c. Make it count capacitance two fruit ball conductor the

2. A ball with fingers R placed A load as big as q on the center.

- a. Determine potential on center ball, V_{center}
- b. Show that potential average from okay the is:

$$V_{rata-rata} = V_{pusat} + \frac{Q_{enc}}{4\pi\epsilon_0 R}$$

3. A ball from material dielectric fingered – finger R own polarization $P(r) = kr^2$, with k is a constant and r is distance from center of ball. Make it count big :

- a. Density load bound surface σ_b And load bound volume ρ_b .
- b. Medan electricity in in And outside ball
- c. Potential electricity in in And in outside ball