

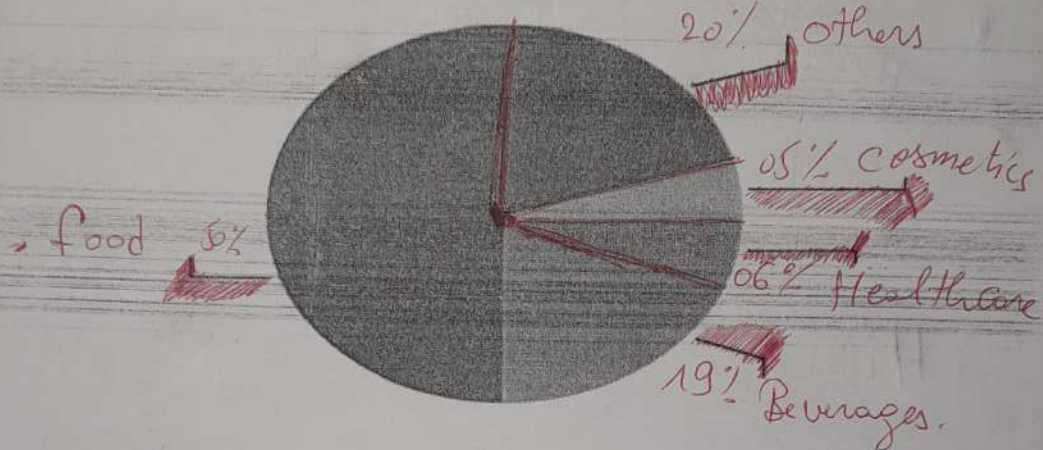
2024-2025

Exam of Packaging and food security

20/20

Task one: complete the legend of Global Commercial Packaging by End Use

02.5



09.06

Task two: Answer these statements:

- Explain the difference between thermosets and thermoplastics
- Name the different types of packaging: Sale Pac, Bundled Pac, Transport Pac, Shipping Pac
- Define intelligent packaging
- What is Integrity Indicators Ageless Eye, oxygen indicator?
- What are these acronyms mean (RFID) and (TTI)? Radio Frequency Identification, Time Temperature Indicator

Cite the three Uses of intelligent packaging

- 1- Create Relationship with Consumers
- 2- Product Authentication and Brand Protection
- 3- Tracking and Traceability

Task three: say whether these statements are True or false

- FA good heat conductor takes faster to heat, but it also takes faster to cool. True
- Tetra packaging consist of Aluminum film (8%) Polyethylene (19%) Carton (73%). False
- The Glass as a food packaging; consists of a mixture of calcium bicarbonate as a melting agent and alumina as excipient. False

Task Four: compare between these intelligent packaging

1 Printed Electronics

2 Toxin Guard Sensors Biosensors

3 Electronic nose

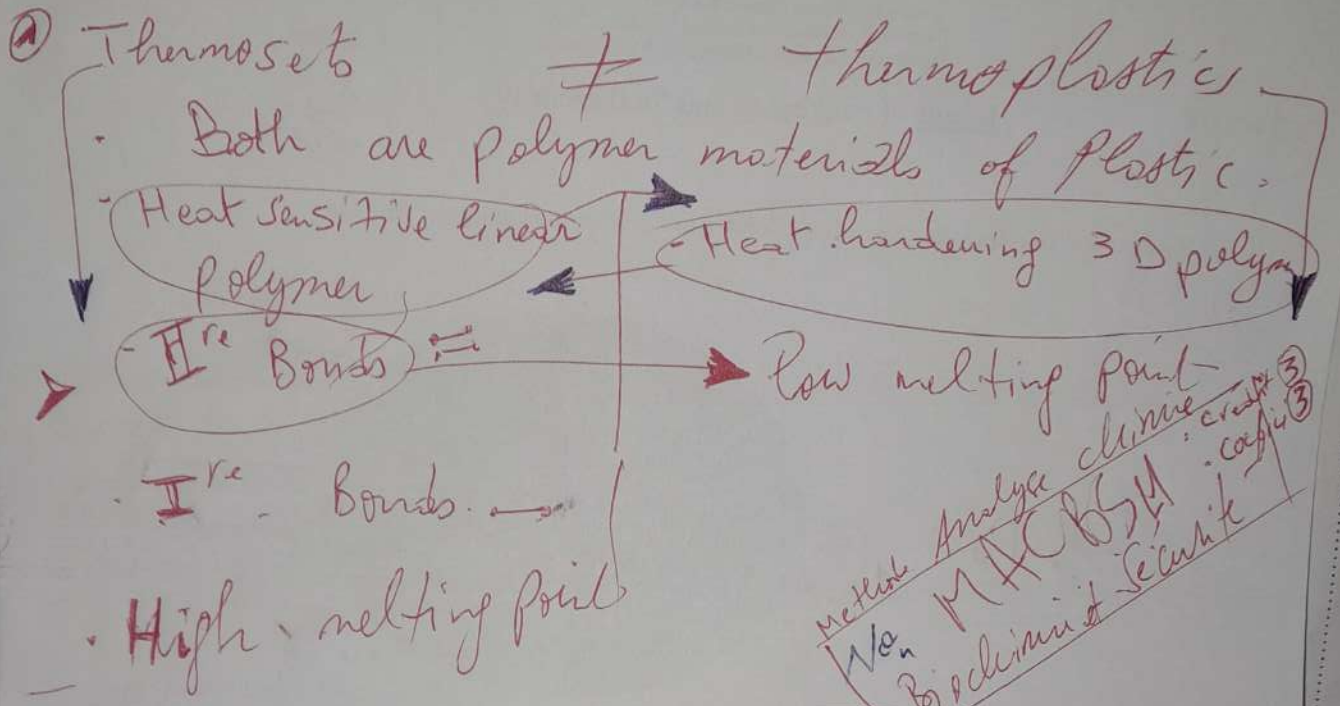
★ ★ ★ ★ Best of luck ★ ★ ★ ★



Booked by Ahmed Ze

Jet tour / Anadys
for sales

Task 2 =



③ Defined intelligent Pack: Packaging that contains an internal or external indicator

④ Ageless Eye is one of the integrity indicators that indicate the presence or absence of oxygen by color change that turns pink at $O_2 < 0,01\%$ and turns Blue at $> 0,5\%$.

① Printed Electronics:

Wide technology on flexible substrate using functional electrical inks: light weight, rollable, portable & foldable
ex: Molecular fingerprint by the shape.

② Toxine guard: Biosensor
Based on Antibodies printed on plastic that detect targeted pathogens by their Biogenic amines by Decarboxylation
Amino or transaminated of aldehyd or ketone due to microbial act
ex: Xanthin in platinum, silver

③ Electronic Nose: it mimics the mammalian olfactory system to measure the aroma mixture in a unique response
ex: Yellow tuna
Vacuum packed beef