	Utech
Name:	
Roll No.:	O division (N'Exemple) and Exemple 1
Invigilator's Signature :	

CS/B.TECH(FT)/SEP. SUPPLE/SEM-7/FT-701/2012 2012

FOOD PACKAGING TECHNOLOGY

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

(Multiple Choice Type Questions)

1.	Choose th	e correct	alternatives	for an	y ten	of the	following	:

 $10 \times 1 = 10$

				10 x 1 - 10
i)		ecommended printing terial is	proces	ss for polymer packaging
	a)	flexography	b)	screen
	c)	inkjet	d)	all of these.
ii)	Cos	st effective version of al	lumini	um foil is
	a)	LDPE	b)	PP
	c)	HDPE	d)	Metalised polyester.
iii)	He	rmetic seal for heat-ste	erilizec	l foods can be offered by
	a)	two piece can	b)	three piece can
	c)	aerosol can	d)	all of these.
iv)	Pap	oerboard carton is an e	xampl	le of packaging.
	a)	primary	b)	secondary

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tertiary

c)

d)

rigid.

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				<u> </u>
v)		_		of a polymer film gives
	mechanical strength, which is with respect			
	to the original film.			
	a)	more	b)	less
	c)	similar	d)	negligible.
vi)	Al-f	oil in a composite lami	nate	is used to give a barrier
	agai	inst		
	a)	oxygen	b)	light
	c)	moisture vapour	d)	aroma.
vii)	Pac	kaging regulations are ខ្	guide	d by
	a)	PFA	b)	BIS
	c)	FDA	d)	all of these.
viii)	of a flexible packaging film increases with			
	the	thickness of packaging	film.	
	a)	Gas permeability	b)	MVTR
	c)	Gloss	d)	GSM.
ix)	• • • • •	is an example of	ther	mosetting polymer.
	a)	PVC	b)	Bakelite
	c)	PET	d)	LDPE.
x)	Sca	lping is basically an in	terac	ction between food stuff
	and packaging material with respect to			
	a)	permeation	b)	migration
	c)	absorption	d)	none of these.
xi)	MV	ΓR is a term relate	d w	ith of a
	pac	kaging film.		
	a)	thermal property		
	b)	electromagnetic prope	rty	
	c)	barrier property		
	d)	mechanical property.		
xii)	Gla	ssine paper is common	ly use	ed to wrap
	a)	UHT milk	b)	cookies
	c)	candies	d)	butter.



- xiii) Example of an edible film is
 - a) Polystyrene
 - b) Poly vinyl chloride
 - c) Cellulose acetate
 - d) Vegetable parchment paper.
- xiv) Full form of GSM value is
 - a) gram per square metre
 - b) grain value per square metre
 - c) grammage per square mesh
 - d) all of these.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- 2. Mention importance of bar-codes for food-packaging.
- 3. Write short note on the following any *two*: $2 \times 2^{\frac{1}{2}}$
 - a) Optical test
 - b) Vibration test
 - c) Edible packaging.
- 4. Highlight the main features of shrink packaging and active packaging.
- 5. What is co-extrusion in making laminates? Discuss the essential requirements for making the laminates. 3 + 2
- 6. What is the basic principle of printing? Describe two methods for printing on flexible packaging materials. 1+4

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Mention the basic functions of packaging. What are the attributes that the food packaging materials should have? What are the different types of food packaging materials commonly used in food industries? 6+6+3



8. What are the different kind of food-packaging interactions in a food package? Specify the related migrating substances and their adverse sequences. Comment on any three factors, which directly affect the interaction. Mention different kind of mechanical stresses for a food package during handling, storage and transport, with their specific causes. Draw a neat diagram of stress-strain curve for flexible packaging.

5 + 6 + 2 + 2

9. Write short notes on any three:

 3×5

- a) Aluminium in packaging
- b) Recycling of packaging material
- c) Specifications by regulatory bodies regarding packaging materials
- d) Scalping phenomenon
- e) Glass transition temperature and melting point of a packaging film
- f) Secondary and transport packaging
- g) Optical tests of packaging film.
- 10. Describe about the packaging of milk and dairy product and bakery and confectionery items. Discuss about rigid and flexible packaging with suitable examples.
- 11. Comment on the general merits and demerits of a perfectly rigid container and a semirigid plastic container. Briefly discuss about different methods for the manufacture of semi-rigid plastic container. Write a short note on flexible pouches.

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