

# DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES

M. Pharm / B. Pharm. 3<sup>rd</sup> Year 5<sup>th</sup> Semester, 2018

Sessional Test No. 2 Date 2/11/18  
 Name Mohamita Mukherjee Sl. No. 1  
 Paper Pharmaceutics (Pharmaceutical Technology) Code PT-506  
 Sl. No. I 59458 -II)  
P. Mohan  
2/11/18  
 Signature of Invigilator



## FOR EVALUATION ONLY ( Marks Obtained )

[ Full Marks ..... 30

Question Number	Marks	7	8	9	10							Total Marks	Examiner's Signature
		7	5	5	7							24	<u>[Signature]</u> 19.11.18

[ START ANSWERING FROM THE SPACE BELOW ]

### GROUP - A

- 1) d) Baffling
- 2) d) none of these
- 3) c) Polishing
- 4) a) About 22°C
- 5) ~~b) Liquid~~ ~~d) Any of these~~
- 6) d) Texture analysis
- 7) c) Both (a) & (b)
- 8) c) Hothel and Dublas
- 9) b) 1.37 ml
- 10) d) Fish Gelatin
- 11) b) Liquid

(7)



Ray  
19/11/18  
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[ P.T.O ]

GROUP-B

PROPERTY	SOFT GELATIN CAPSULE	HARD GELATIN CAPSULE
i) SHELL	<p><u>Soft Shell</u>            (External plasticizer like Glycerol and Sorbitol etc., are used)</p>	<p><u>Hard Shell</u>            (No external plasticizer is added)</p>
ii) CONTENT	<p><u>Liquids and Semi-Solids</u> are the primary materials to be filled in the capsules.</p>	<p><u>Powders and granules</u> are the primary materials to be filled.</p>
iii) Manufacturing Process	<p>It follows the <u>FFST</u> i.e., <u>Form, Fill and Seal</u> technology. Capsules are formed, filled and sealed in <u>one go</u>.            The <u>equipment</u> is quite <u>costly</u> and <u>rate of production</u> is <u>slow</u>.</p>	<p>It is a <u>2 step</u> process. <u>Formation of shell</u> and <u>Filling of shell</u>.</p>
iv) Closure	<p>It is <sup>done</sup> either with <u>seam</u> or <u>seamless</u>.</p>	<p>The processes are:</p> <ul style="list-style-type: none"> <li>• <u>Mechanical</u></li> <li>• <u>Friction fit</u></li> <li>• <u>Banding</u></li> <li>• <u>Liquid Sealing</u></li> </ul>
v) Shape/size	<p>Its size ranges from <u>1-480 microns</u>.            Shape depends on <u>type of mold used</u>.</p>	<p>(CRMS i.e., liquid Encapsulation by <u>seal</u> sealing)            Its size varies from <u>5-1000</u>  <u>5</u> → 0.1 ml  <u>1000</u> → 1.37 ml            (with increase in size decrease in shape → <u>ONI-SNAP, ONE</u>)</p>



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vii) Formulation Technology

Optimized for liquid filling

Optimized for solid filling.

viii) Fill accuracy

liquid fill by volume  
- this filling is more accurate  
Error  $\rightarrow$  1-3%

Accuracy  $\rightarrow$  2-5%

5

9) Gelatin used in capsule shell manufacturing is basically of 2 types  $\rightarrow$  Type A  
Type B.

### TYPE A GELATIN

i) Its source is skin (eg, pork skin, calf skin). It is also known as skin gelatin.

ii) It is obtained by acidic hydrolysis of skin.

iii) It is iso-electric at a pH range of  $\approx$  2-9.

iv) It is very flexible and soft.

v) It has a clear appearance.

### TYPE B GELATIN

i) Its source is bone. It is also known as Bone gelatin.

ii) It is obtained by alkaline hydrolysis of bone.

iii) It is iso-electric at a range of  $\rightarrow$  4.8-5.

iv) It lacks flexibility. It is harder or firm and opaque.

v) It has a cloudy appearance.



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## GROUP - C

10) Sugar coating of tablets has been done since ancient times till date. It is a fairly simple process. It consists of a pan, in which all the tablet cores are placed. Sugar solution is added to it, ~~the~~ and the pan is turned repeatedly till an even coating forms on the surface of the tablet cores. The major portion of this process is controlled manually. The operator controls the quantity of sugar solution to be added, the rate of addition, the method of addition, when to add the sugar solution.

The sugar coating process has the following steps:-

i) Seal Coating → This ~~part~~ is done to prevent atmospheric moisture to get absorbed on the surface of the tablet, making it soft and easily disintegrated. As it is done in an open pan at the places of the surface which are covered with the sugar solution, absorbs moisture from air and becomes soft. In order to prevent this, a seal coat is added. Earlier, shellac was used as a seal coat but it was found to show the problem of polymerization on aging. Thus, it has now been replaced by the alcohol soluble protein, Zein.

ii) Sub-Coating → It is done to give the tablet, its desired thickness. In this process, the edges are thickened by repetitive application of a sticky binder solution and dry powdered subcoat material. This process is continued till the desired


thickness is reached.

iii) Syruping (or smooth smoothing) → It is done to hide the imperfections on the surface, which is obtained after subcoating. Several layers of syrup is applied to the subcoated tablet. Initially, a colour is used in the syrup. Dilute colourants add a thin layer to the tablet. Colour is added to the syrup towards the end of this process. At the last few times, the syrup used is not coloured but clear in appearance.

iv) Finishing → Excess amount of coating is scrapped off using a sharp knife.

v) Polishing → At the end of the coating process, polishing is done to provide lustre to the tablets. Beeswax or wax solution is added to the tablets and they are tumbled and again inside a canvas-lined drum type tumbler. This gives the tablets a smooth and glossy appearance.



  
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