



WINTER- 14 EXAMINATION

Subject Code:0811

Model Answer

Page No: 1/ 35

Important Instructions to examiners:

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.



WINTER – 14 EXAMINATIONS

Subject Code: 811

Model Answer

Page No: 02/ 35

1. Attempt any eight of the following.

a) Translate following terms in English (0.5 x 4 = 2 marks)

- i) Cataplasma: A poultice
- ii) Jentaculum : Breakfast
- iii) Cochlear magnum: one tablespoonful
- iv) Ante cibos: Before meals.

b) What is method B for precipitate yielding interactions? (2 marks).

Method B for precipitate yielding interactions:

- This method is followed for indiffusible precipitate forming solids.
- Divide the vehicle into two equal portions.
- Dissolve one of the reacting substance in one portion.
- Weigh a suitable quantity of compound tragacanth powder (2 gm /100 ml of finished product) & transfer in a mortar & use part of second portion of vehicle to produce smooth mucilage.
- Then add other reacting substances. Mix the two portions by slowly adding one portion to other with rapid stirring.
- A secondary label 'Shake the bottle before use' should be fixed on the container.

c) Write four advantages of suppositories. (0.5 X 4 = 2 marks).

- These can be easily administered to children, old persons & to unconscious patients.
- These are inserted into body cavity to produce local effect of the medicament incorporated in the base.
- These are inserted into the rectum to exert a direct & rapid action on the rectum.
- These are inserted into the rectum to promote evacuation of the bowel
- .Suppositories are unit dosage form of drugs.



WINTER – 14 EXAMINATION

Subject Code: 811

Model Answer

Page No: 03/ 35

- These are convenient mode of administration of drugs which irritate gastro-intestinal tract, causes vomiting & destroyed in the acidic pH of gastric juice of stomach.
- Drugs in suppositories are slowly absorbed giving sustained action.
- They are also been used fir prolongation of drug action.

d) Give any two examples of preservatives used in ophthalmic preparation. (1 X 2 = 2 M).

- i) Phenyl mercuric nitrate/acetate
- ii) Benzalkonium chloride
- iii) Chlorhexidine acetate

e) Calculate the dose of child who has body surface area of 0.63 m^2 when adult dose is 50 mg. (2M).

$$\begin{aligned} \text{Dose for child} &= \frac{\text{Surface area of child}}{1.73 \text{ m}^2} \times \text{Adult dose.} \\ &= \frac{0.63}{1.73} \times 50 \\ &= 18.20 \text{ mg.} \end{aligned}$$

f) What are hydroscopic & deliquescent powders? Give examples (Definition 0.5 X 2 = 1M + example 1M).

Hydroscopic powders: The powders which absorb moisture from atmosphere are called hydroscopic powders.

Deliquescent powders: Certain powders absorb moisture to such great extent that they go into the solution are called as deliquescent powders.

Examples: Ammonium chloride, Iron, Ammonium citrate, pepsin, phenobarbitone, sodium iodide, potassium citrate, zinc chloride.



WINTER – 14 EXAMINATION

Subject Code: 811

Model Answer

Page No: 04/ 35

g) Define diffusible & indiffusible substances. (1 mark for each definition)

Diffusible substances: There are certain insoluble powdered substances which are light in weight & readily mix with water & remain suspended throughout the liquid for sufficiently long time after shaking; such substances are called diffusible substances.

Indiffusible substances: Indiffusible solids are those substances which do not dissolve in water and do not remain evenly distributed in the vehicle for sufficient long time to ensure uniformity of dose.

h) Why throat paints are viscous? (2 marks)

Throat paints are viscous because medicaments adhere to mucous membrane for long period which helps to prolong the time period of the drug to remain in contact with the mucosa.

i) Enumerate various quality control test for parenteral product.(0.5 x 4 = 2 marks).

- Sterility test.
- Clarity test.
- Leakage test.
- Pyrogen test
- Assay.

j) Enumerate various tests to identify the types of emulsion. (0.5 x 4 = 2 marks).

- a. Dilution test
- b. Dye test
- c. Conductivity test
- d. Fluorescence test.
- e. Cobalt chloride paper test.



WINTER – 14 EXAMINATION

Subject Code: 811

Model Answer

Page No: 05/ 35

k) Define & classify facial cosmetics. (0.5 mark definition, 1.5 mark for classification).

These are the preparations which used for cleansing, refreshing & nourishing the face, which are available in the form of solid, liquid & semisolid to prevent premature ageing of skin & improve the overall looks & personality.

Classification:

1. Face powder
2. Compact face powder
3. Rouges
4. Cold creams
5. Cleansing cream
6. Vanishing cream
7. Foundation cream
8. Moisturizing creams
9. Preparation for eye make up
 - i) Eye shadow
 - ii) Eye brow pencil
 - iii) Mascara
10. Lipsticks
11. Bleaches
12. Shaving media
 - i) Lather shaving cream
 - ii) Brushless shaving cream
 - iii) Shaving soaps
 - iv) Shaving sticks.



WINTER – 14 EXAMINATION

Subject Code: 811

Model Answer

Page No: 06/ 35

1) Differentiate between ointments & creams.(0.5 x 4 = 2 marks.).

Ointments	Creams
1. Ointment consists of 80% oil and 20% water.	1. Creams are generally composed of 50% water and 50% oil.
2. Ointments are greasier and they have thicker consistencies.	2. Creams have lighter consistencies
3. Ointments stay longer on the surface of the skin and not easily absorbed.	3. Creams can be quickly absorbed by the skin.
4. Not easily removed from the skin & clothing	4. Easily removed from the skin & clothing
5. Example : Emulsified ointments	5. Example: cold cream.

Q.2 Attempt any four of the following:

a) Define prescription Write various parts of prescription with significance of each. (definition 1 mark,1 mark for parts of prescription,1 mark for significance).

Prescription is a written order from a registered medical practitioners, such as dentist, veterinarian etc. to a pharmacist to compound & dispense a specific medications for the patient.

Parts of prescription:

1. **Date:** It is important to avoid misuse of prescription if it is presented by the patient, a number of time for dispensing.
2. **Name, age, sex & address of the patient :** The Name, age, sex & address of the patient is important for proper handling of prescription & also identification of patient .Age & sex is important especially for children to check prescribed dose of medication.
3. **Superscription:** It consist of symbol Rx which is instruction to pharmacist. Rx stands for Latin word recipe meaning ‘ you take’. This is for praying quick recovery of patient.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 07/ 35

4. **Inscription:** This is main part of prescription order & contains name & quantities of the prescribed ingredients.
5. **Subscription:** It contain direction to the pharmacist for preparing prescription which is usually 'Mix', 'Send tablets', or 'capsules' etc.
6. **Signature :** It consist of the direction to be given to the patient regarding administration of the drug.
7. **Renewal instructions :** The prescriber indicate on every prescription order whether it may be renewed & if so, how many times. It is important particularly in the prescription containing the narcotic & other habit forming drugs to prevent misuse.
8. **Signature, address & registration number of the prescriber:** The prescription bears signature, address & registration number of the prescriber. It is important particularly in the prescription containing the narcotic & other habit forming drugs to prevent misuse.

b) **How will you dispense the following prescription? Point out incompatibility.(1 mark for incompatibility identification and 2 marks for dispensing)**

Note: There is printing mistake in this question. Ammonium bromide should be included instead of ammonium chloride.

Rx

Phenobarbitone sodium-----650 mg

Ammonium chloride-----8 g

Water upto -----100ml.

Incompatibility: This is a chemical Incompatibility

When soluble barbiturate like phenobarbitone sodium is combined with ammonium bromide in the presence of water, the barbiturate is separated as indiffusible precipitates which are insoluble in water, therefore method B has to be followed by using suspending agent.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 08/ 35

Method of dispensing:(2 mark for any one method)

1)Prescriber prescribed phenobarbitone sodium along with ammonium bromide to dispense clear mixture for the patient.

This can be possible by replacing the chemically equivalent amount of ammonium bromide with sodium or potassium bromide because sedative action of these three is same.

Therefore replace 8 g of ammonium bromide with 8.4 g of sodium bromide.

2) Method B for precipitate yielding interactions:

- This method is followed for indiffusible precipitate forming solids.
- Divide the vehicle into two equal portions.
- Dissolve one of the reacting substance in one portion.
- Weigh a suitable quantity of compound tragacanth powder (2 gm /100 ml of finished product) & transfer in a mortar & use part of second portion of vehicle to produce smooth mucilage.
- Then add other reacting substances. Mix the two portions by slowly adding one portion to other with rapid stirring.
- A secondary label 'Shake the bottle before use' should be fixed on the container.

c) Define the following. (1 mark for each definition).

- I. **Tachyphylaxis:** When certain drugs are administered repeatedly at short intervals, the cell receptors get blocked up (depletion of NT takes place) & pharmacological response to that particular drug is decreased. The decreased response cannot be reversed by increasing the dose .This phenomenon is known as tachyphylaxis.
Eg.ephedrine in bronchial asthma.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 09/ 35

- II. **Tolerance:** When an unusually large dose of drug is required to elicit an affect ordinarily produce by normal therapeutic dose of the drug, the phenomenon is termed as tolerance. eg. smokers can tolerate Nicotine
- III. **Idiosyncrasy:** An extra ordinary response to a drug which is different from its characteristic pharmacological action is called idiosyncrasy. The word idiosyncrasy has now been replaced by the term drug allergy.

Eg Penicillin ,sulphonamide

d) **What do you mean by cachets? Discuss the different types of cachets.**

(Definition 1 mark, types2 marks).

Cachets are the solid unit dosage form of the drugs. These are moulded from rice paper which is made by pouring a mixture of rice flour & water between two hot, polished, revolving cylinders. The water evaporates & a sheet of wafer is formed. Cachets are used to enclosed nauseous or disagreeable powders. Cachets are also known as wafer capsules.

Types of cachets

- i) Wet seal cachets
- ii) Dry seal cachets

Wet seal cachets:

- Wet seal cachets made up of two similar convex halves having flat edges.
- The weighed quantity of powdered drug is placed in one half the edges of the other half are moistened with water & placed exactly over the first half containing the drug
- The flat edges of both the halves are pressed together in order to seal it perfectly.

Dry seal cachets:

- Dry seal cachets consist of two halves, the upper half & lower half.
- The diameter of the upper half is slightly larger than the lower half.

WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No:10/ 35

- The powdered drug is filled in lower half & upper half is fitted over it.
- The filled cachets are then sealed in machine by pressing the two halves, removed & packed in boxes.

Diagram:



e) Differentiate between liniments & lotions.(0.5 mark for each point).

Liniments	Lotions
1.They are used for counter irritant, rubefacient, soothing or stimulating purpose.	1.They are used for topical effect such as local cooling, soothing protective & emollient effect.
2.Applied with friction	2.Applied without friction.
3.Vehicle is mostly oily or alcoholic	3.Vehicle is mostly aqueous.
4.These are used for application to the unbroken skin.	4.Lotions are applied on broken skin.
5.Applied directly	5.Applied with cotton gauze
6.Turpentine liniment	6.Sulphur lotion.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 11/ 35

f) Classify thickening agents of suspension(3 marks)

These are hydrophilic colloids which form colloidal dispersions with water & increases the viscosity of continuous phase. The thickening agent used to stabilize the Suspension are classified into 3 major group

1) polysaccharides : Two types

a) Natural polysaccharides:

i) Gum acacia : It is a good protective colloid & suspending agent. It is more effective when it is used as compound tragacanth powder which is used in concentration of 2 g per 100 ml of mixture when the vehicle is other than water & chloroform water.

ii) Tragacanth : it is used as compound tragacanth powder or tragacanth mucilage.

Tragacanth mucilage is used when the vehicle is water or chloroform water in the concentration of $\frac{1}{4}$ th of the total volume of the mixture.

iii) Starch : It is sometimes used with other suspending agents because of the high viscosity of its mucilage.

iv) Sodium alginate : It forms a viscous solution when dissolved in water.

Semisynthetic : i) Methyl cellulose: It is generally used in the concentration of 0.5 to 2% both in external and internal preparation

ii) Sodium carboxymethylcellulose : It is used in 0.25 to 1% in preparations meant for oral, external and parenteral use.

iii) Microcrystalline cellulose : It is prepared from wood cellulose by acid hydrolysis.

2) Inorganic agents a) **Clay** : Bentonite & aluminum magnesium silicate is very commonly used as thickening agent



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 12/ 35

b) Aluminum hydroxide: It is used as a suspending agent in suspension containing Barium sulphate, calamine, sulphonamide & sulphur.

3) Synthetic compounds : **a) Carbomer :** (carboxy vinyl polymer): It is used as a thickening agent in the concentration of 0.1 to 0.4 percent for internal & external preparations.

b) Colloidal silicon dioxide : It is white powder & act as a suspending agent in the concentrations of 1.5 to 4 %

Q.3 Attempt any four of the following:

a) Describe dermatological factors for selection of ointment base.

Dermatological factors for selection of ointment base: (0.5 x 6 = 3M)

Dermatological factor:

- i. Absorption & penetration.
- ii. Effect on skin.
- iii. Miscibility with skin secretion and serum.
- iv. Compatibility with skin secretion.
- v. Freedom from irritant effect.
- vi. Emollient properties.
- vii. Ease of application.

Absorption & penetration:

- The ointment base penetrates deep into tissue of the skin along with the medicament and which in turn allows the systemic absorption of medicament into blood stream.
- Animal fat and fixed oils penetrate more readily through the skin in comparison to mineral oil, but absorption is slow.
- The o/w emulsion base release the medicament more readily than oleaginous base or w/o emulsion base.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 13/ 35

Effect on skin:

- Greasy base may interfere with the skin function like heat radiation and sweat excretion.
- The water soluble base and o/w emulsion provide cooling effect.
- These mix readily with skin secretion.

Miscibility with skin secretion and serum:

- Skin secretion is more readily miscible with emulsion bases as compared to greasy bases.
- Hence these are preferred to oleaginous bases.
- o/w emulsions are more readily miscible with serum from broken skin and useful as ointment base.

Compatibility with skin secretion:

- Neutral ointment bases are preferred because they will not cause discomfort.
- The ointment bases should have pH of 5.5 which is the average pH of skin.

Freedom from irritant effect:

- Bases should be non-irritant.
- Greasy base may cause irritation and may lead to edema.
- o/w emulsion bases preferred over greasy base .
- All the bases should be of high standard purity when used for ophthalmic ointment.

Emollient properties:

- Under normal conditions, continuous hydration occurs which keeps the skin sufficiently moist.
- Dryness and brittleness of the skin cause discomfort to the skin.
- Therefore, the ointment bases used should possess emollient properties that should be able to keep the skin moist.
- The humectants like glycerin and propylene glycol keep the skin surface moist and soft.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 14/ 35

- Wool fat, lard and paraffin keep the skin soft by preventing rapid loss of moisture from the skin.

Ease of application:

- The ointment bases used should be easily applicable and at the same time they are easy to be removed from the skin.
- Stiff and sticky ointment bases are not suitable because they may cause damage to tissues of the skin.
- Due to this reason the emulsion bases are preferable as they are softer and spread more readily over the area to which they are applied
- The emulsions particularly o/w types are easily removable with water.

b) Define jellies. discuss its types.

Define. (1M)

Jellies: Jellies are transparent or translucent non greasy, semisolid preparations meant for external application to skin or mucous membrane.

Type of jellies: (0.5 x 4 = 2M)

- Medicated jellies.
 - Lubricating jellies.
 - Miscellaneous jellies:
 - Patch testing.
 - Electrocardiography.
- i) **Medicated jellies** are used on mucous membrane and skin for their spermicidal, local anaesthetics and antiseptic properties.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 15/ 35

ii) **Lubricating jellies** are used for lubrication of diagnostic equipment such as, surgical gloves, cytosopes, fingerstalls, catheters, rectal thermometers.

iii) **Miscellaneous jellies:**

- a) **Patch testing:** these jellies are used as a vehicle for allergens which are applied on the skin to check the sensitivity.
- b) **Electrocardiography:** The jelly is applied on the electrode to reduce the electrical resistance between the patient's skin and the electrode.

c) **Describe formulation of dentifrices.**

Formulation of dentifrices: (0.5 x 6 = 3M)

1. Abrasive agents:

- The abrasive agents such as calcium sulphate, magnesium carbonate, sodium carbonate and sodium chloride are used in fine powder.
- A strong abrasive substance should however not to be used as it may damage the tooth structure.

2. Detergents:

- They contain a suitable detergent or soap.
- Soap removes the debris from surface of tooth by the mechanism of emulsification

3. Humectants:

- Humectants are added to prevent the drying of preparation.
- Ex. Glycerin, propylene glycol, etc.

4. Sweeteners:

- Sweeteners are added to change the taste of the formulation and to avoid the bitter taste of the ingredients.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 16/ 35

- Ex. Saccharine sodium, sucrose, etc.

5. Colours:

- Colour is added to improve appearance of preparation to make attractive.
- Ex. Coal tar dyes,

6. Flavours:

- Flavours are added to improve the taste of the formulation.
- Ex. Peppermint oil, cinnamon oil, etc.

d) Mention the advantages and disadvantages of parenteral preparations.

Advantages of Parenteral products: (0.5 X 3 = 1.5M)

1. Quick onset of action.
2. The drug which can not be administered by oral route, can be administered by this route.
3. It can be administered to unconscious patient.
4. Drug action can be prolonged by modifying the formulation.
5. Transfusion fluids containing nutritive like glucose electrolytes such as sodium chloride can be given by this route.

Disadvantages of Parenteral products: (0.5 X 3 = 1.5M)

1. Injection causes pain at the site of injection.
2. The trained persons are required to administer.
3. The administration of drug through wrong route of injection may prove to be fatal.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 17/ 35

4. It is difficult to save a patient when over dose is given.
5. There are chances of sensitivity reaction or allergic reaction.

e) Give general requirements of ophthalmic products.

General requirements of ophthalmic preparations: (0.5 X 6 = 3)

- i)Free from foreign particle-.it should be free from foreign particles , fibers and filaments. This can be obtained by passing through bacteria proof filter.
- ii) Viscosity.-Polyvinylalcohol. polyethylene glycol ,Methyl cellulose are added to enhance the viscosity of ophthalmic preparation to increase the contact time of the drug in the eye.
- iii)Isotonic with lachrymal secretion.-The preparation has to be isotonic so as to avoid the discomfort and irritation to the eye. This can be done by addition of sodium chloride,
- iv)pH. –The pH of the eye drop should be around 7.4 which is the pH for tears. The pH can be adjusted by adding appropriate buffer.
- v)Sterility.-The eye drop has to be sterile. If it is supplied in multidose container suitable preservative has to be added to prevent growth of microbes.
- vi)Surface activity: The ophthalmic preparation must have good wetting ability so as to penetrate cornea and other tissue. So suitable wetting agent is added .eg polysorbates

Q3f) Explain the term creaming, cracking and phase inversion.

Creaming: (1M)

- When large globules or aggregate of globules rises to the top of an emulsion or fall to the bottom and form concentrated thick layer.
- Temporary phase.
- Creaming should be avoided because it leads to cracking.

Cracking: (1M)



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 18/ 35

- Greater destruction to an emulsion than creaming.
- It is the coalescence of the globules of internal phase and separation of that phases in to a distinct layer.
- This is irreversible, since the protective sheets above the globules of the internal phase no longer exist.
- Re-stabilization by shaking is normally unsuccessful.

Phase inversion: (1M)

- Phase inversion means change in the type of emulsion i.e. o/w to w/o or vice versa.
- Reasons for phase inversion.
 1. Addition of electrolyte.
 2. Changing phase volume ratio.
 3. Temperature change.
 4. Changing the emulsifying agent.

Q.4 Attempt any four of the following:

a) How will you dispense following prescription? Identify the incompatibility.

Rx

Sodium bicarbonate.....1g

Borax1g

Phenol 0.5 g.

Glycerin 20 g.

Water 90 ml.

Make an emulsion.

Prescription:



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 19/ 35

Incompatibility: (1.5M)

It is a carbon dioxide evolution type of chemical incompatibility:

In presence of glycerin borax decomposes to form sodium metaborate and boric acid. Boric acid reacts with glycerin to form monobasic glyceryl-boric acid which then reacts with bicarbonates liberating carbon dioxide. To hasten the reaction ingredient should be mixed in an open vessel using hot water as vehicle.

Dispensing: (1.5M)

1. Weigh sodium bicarbonate and borax accurately.
2. Mix them with glycerin and half the quantity of water in a big beaker.
3. After the effervescence ceases make up the volume with water.
4. Transfer to a bottle, cork it, attach prepared label and submit.

b. Write the short note on dusting powder and insufflations.

Dusting powder: (0.5M definition, types 1 M, sterilization 0.5M = 2M)

- These are finely divided solid medicament meant for external application to the skin/wounds.
- These are passed through sieve no 85 (180um) to enhance the effectiveness.

Types:

- **Medicated dusting powder.**
 - These are used mainly for superficial skin conditions and sterility is rarely essential. However, they must be free from dangerous pathogens.
- **Surgical dusting powder.**



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 20/ 35

- These are used in body cavities and major wounds, on burns and on the umbilical cords of infants; hence, they must be sterile. They often contain an antibacterial agent
- These are prepared by mixing two or more ingredients one of which is starch, talc or kaolin.
- These are sterilized by dry heat sterilization 160°C for 2 hrs.
- These are used for antiseptic, antipruritic, astringent, or antiperspirant.
- These are packed in sifter top container.
- Generally these are non toxic but inhalation by infants may lead to pulmonary inflammation.

Insufflations: (1M):

- These are medicated dusting powders.
- Meant for introduction into body cavities such as ears, nose, throat and vagina.
- With the help of an apparatus known as “insufflators”.
- It sprays the powder into a stream of finely divided particles all over the site of application.
- Difficulties in insufflators.
 - Difficult to obtain measured dose.
 - It gets blocked when wet.
- Nowadays these are available in pressure aerosols.
- These are used to administer potent drug.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No:21/ 35

- This method has excellent advantage of controlling the dose, if metered dose valve is attached.

c. Give formulation of mixture.

Formulation of Mixture:

a. Vehicles: following vehicles are used.(1M)

- Water: purified water
- Aromatic water: Multiple use, e.g. chloroform water, Cinnamon water, etc.
- Medicated vehicle: Infusions, ex. Senegal infusion as expectorant.

b. Adjuncts: Adjuncts are generally used to improve the Safety, efficacy and palatability. (0.5 X 4 = 2M)

1. Chemical Stabilizers: e.g. Antioxidant: Ascorbic acid (0.1%), Sodium metabisulphite (0.1%) etc.
2. Preservatives: Chloroform (0.25%), Benzoic acid (0.1%) Methyl paraben, propyl paraben, etc.
3. Coloring Agents: E.g. Coal tar dyes.
4. Sweeteners: sodium saccharin, sucrose, syrups etc.
5. Flavoring Agents: The following flavoring agents are commonly used in mixtures.
 - a. Aromatic water
 - b. Syrup and Glycerol.
 - c. Spirit lemon to cover the taste of alkaline citrates.
 - d. Orange syrup and compound orange spirit.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 22/ 35

d. Discuss oral and ophthalmic suspension.

Oral suspension:

Definition: suspensions are biphasic liquid preparation containing insoluble solid which disperse by addition of suspending agent. **(0.5M)**

Ideal qualities of suspension :(0.5 x2 = 1M)

- ❖ It should settle slowly, readily re-dispersed on gentle shaking of the container
- ❖ It should pour readily and evenly from its container.
- ❖ The suspended particles should not form a cake.
- ❖ Suspended particles should be small and uniformly sized.
- ❖ Viscosity must not be very high.
- ❖ It should be chemically inert.

Additives: (optional 0.5 X 2 = 1M)

1. Flocculating agents: sodium lauryl sulphate, tweens, spans and carbowaxes.
2. Suspending agents or thickening agent: acacia, tragacanth, starch and sodium alginate.
3. Wetting agent: alcohol, glycerin, bentonite and polysorbate.
4. Preservatives: Benzoic acid, Sodium benzoate, Methyl paraben and propyl paraben.
5. Organoleptic additives

Ophthalmic suspension:

Definition: (0.5M)

- Eye suspensions are the sterile preparation used for instillation to eye.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 23/ 35

- They are prepared only in those cases, when the drugs are insoluble in the desired vehicle or unstable in liquid form.

Characteristic of eye suspension: (0.5 x2 = 1M)

- They should be sterile.
- They should have desired viscosity.
- The particle size of the eye suspension should be fine enough so that it should be non irritating to the eye.
- They should be isotonic.
- They should be shaken thoroughly before use.
- They should be packed in a suitable container, so that it can be easily instilled.

e. Describe cataplasms. (Definition-1 M, 2m for discussion on kaolin poultice)

Ans: Poultices are soft, viscous wet masses of solid substances applied to the skin for their fomentation action in order to provide relief from pain or reduce inflammation or to act as a counter-irritant. Poultices are also known as ‘cataplasms’. Poultices were used to prepare in ancient times to drain infectious material from diseased tissues.

Kaolin act as heat carrier

Poultices is applied to affected part after heating until heat is tolerated on the back of the hand.

Method of preparation of Kaolin Poultice BPC.

Rx,

Heavy Kaolin, dried at 100⁰C and finely sifted.

Boric acid, finely sifted



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 24/ 35

Thymol

Peppermint oil

Methyl salicylate

Glycerin

Make a poultice.

Direction: Spread the warm poultice on a dressing material and applied on the affected part.

Method: Mix the heavy kaolin and boric acid with glycerin to form a smooth paste in a china dish. Heat the mixture at 120⁰C for one hour on a sand bath with occasional stirring and allow to cool. Dissolve the thymol in methyl salicylate and peppermint oil. Add this solution to the cooled mixture and mix thoroughly. Transfer it into a suitable container. Tightly close the container to prevent the absorption of moisture by the glycerin and loss of volatile constituents. Transfer to a plastic jar label and dispense.

f. Explain cold compression method of preparation of suppositories.

Cold compression method:

Method: (2M)

- Compression molding is a method of preparing suppositories from a mixed mass of grated suppository base and medicaments which is forced into a special compression mold using suppository making machines.
- The suppository base and the other ingredients are combined by thorough mixing.
- The friction of the process causing the base to soften into a past-like consistency.
- In the compression machine, the suppository mass is placed into a cylinder which is then closed.

WINTER – 14 EXAMINATION

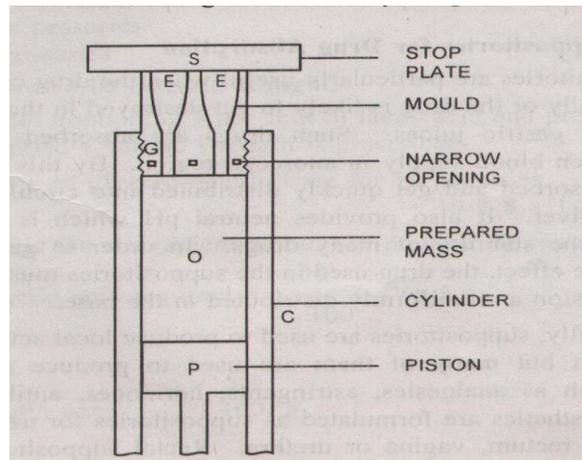
Subject Code:811

Model Answer

Page No: 25/ 35

- Pressure is applied by moving the piston forward.
- Once the movement of piston stops base is completely filled in the mould.
- Remove the suppositories from mould.

Diagram: (1m):



Q.5 Attempt any four of the following:

a) Prepare and dispense following emulsion (0.5 marks for each point)

Rx

Liquid paraffin -60ml

Phenolphthalein -2gm

Agar -1.5gm

Syrup -15gm

Cinnamon water up to -180ml

Its an emulsion containing solid insoluble in both the phases.

- Heat required quantity of shredded agar in calculated quantity of distilled water ,until solution is effected



Winter – 14 EXAMINATION

Subject Code: 0811

Model Answer

Page No: 26/ 35

- Add calculated quantity of conc cinnamon water equivalent to quantity of distilled water used
- Weigh required quantity of phenolphthalein and ,acacia in previously warm mortar and triturate it thoroughly
- Add required quantity of liquid paraffin to the mixture and triturate
- Make primary emulsion by dry gum method using cinnamon water
- To the primary emulsion add agar solution with constant trituration
- Transfer to a measure and makeup the required volume

Q5b) Define paste, describe bases used for pastes

Pastes are semisolid dosage form for external use they are dispersion of high concentration of insoluble powdered substances in a fatty base or aqueous base (1mark)

Types of bases for pastes

- Paste with gelatin base -A hot 2% gelatin solution is used which becomes jelly on cooling, to this 10-15% glycerin is added which act as preservative and emollient and in this solution solid substances are incorporated example Unnas paste
- Paste with starch base (gelatinized or ungelatinised) In case of gelatinized paste 10% starch solution is prepared and gelatinized by heating and than glycerin is added in this solution solid substances are added, in case of ungelatinised paste large portion of starch powder is mixed with other solid ingredients and water to form the paste.
- Paste with tragacanth base also called as Bassorin pastes In this the tragacanth powder is mixed with alcohol and triturated briskly followed by addition of glycerin and water.
- Paste with cellulose derivatives- cellulose ether are dissolve in cold water and allowed to stand overnight it forms jelly and in this solid substances are incorporated
- Paste with pectin base- Pectin is triturated with medicament and glycerin followed by addition of salon solution to form paste



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 27/ 35

- Paste with colloidal base aluminum hydroxide and bentonite are used as colloidal base. The colloidal base is triturated with solid substances followed by addition of glycerin and water

Q5C) Define lipstick. Give ideal qualities and formulation of lipstick

Lipsticks are the cosmetic preparation used by the women to give an attractive colour and appearance to the lips(1/2mark)

Ideal qualities of lipstick.(any four points 1 mark)

It should be non toxic and non irritating

It should be free from gritty particles

It should be easily applicable and removable

It should give shiny and smooth appearance

It should not dry on storage

It should be long lasting after application

The stick should not break during application

It should be stable over the range of temperature

It should not exclude oil nor it should be brittle

Formulation of lipsticks: (1 ½ marks)

- I. **Bases:** The bases used are mixtures of oils, fatty materials and waxes such as mineral oils, vegetable oil, butyl stearate, cocoa butter, petrolatum, lanolin, lecithin, carnauba wax, beeswax, spermaceti etc.
- II. **Colouring materials:** Colour used for lipsticks are water soluble eosin and halogenated derivatives of fluorescein and tetra bromofluorescein. Certain pigments like titanium dioxide are also used to intensify the colour.
- III. **Perfumes:** Only those perfumes are selected for lipsticks which are non-irritant and having an agreeable taste. Floral fruity and light spicy fragrances are generally used for this purpose.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 28/ 35

IV. **Antioxidants:** These are used to prevent rancidity which occurs due to oxidation of some ingredients. The antioxidants used are butylated hydroxy anisole, butylated hydroxy toluene, propyl gallate .

Q5D) Describe vehicle used in parental preparation

There are two types of vehicle which are commonly used for preparation of parental **(11/2 marks for each vehicle)**

1. Aqueous vehicle –Water is used as vehicle for majority of injection as it is safest and well tolerated by body. The aqueous vehicle used are

Water for injection

Water for injection free from CO₂

Water for injection free from dissolved air

Water for injection is sterile water free from volatile and non volatile impurities and also from pyrogens

2.Non aqueous vehicle –Commonly used non aqueous vehicle are oils and alcohols

Fixed oil such as arachis oil, cotton seed oil, almond oil and sesame oil are used as vehicle
Dimercaprol injection where arachis oil is used as vehicle

Ethyl alcohol is used as vehicle for preparation of hydrocortisone injection

Propylene glycol is used in preparation of digoxin injection

Q5E) Write short note on adjuvants used in eye drops

Adjuvants used in preparation of eye drops Thickening agents-methyl cellulose, carboxy methyl cellulose, polyvinyl alcohol, polyethylene glycol are used to increase the viscosity of the preparation and also to increase the contact time of the drug in the eye. Buffers-they are added to



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 29/ 35

adjust and maintain the pH of the eye drops so as to reduce discomfort and to improve clinical response e.g. boric acid ,sodium acid phosphate, sodium citrate etc.

Anti oxidants-they are added to protect the eye drops from oxidation e.g sodium metabisulphite sodium thiosulphate etc.

Wetting agent They are used for proper penetration of eye drops into the cornea of the eye e.g polysorbates

Isotonicity adjustment substances eye drop are made isotonic with lachrymal secretion with the help of various buffers and other solutions

Q5F)Convert in metric system (0.5 marks for each)

1 grain =60 mg

1fl drachm== 4ml

1 fl ounce= 30ml

1 quart =1000ml

1minims= 0.06ml

1pound=450mg

Q6a)Describe liquids to be used in mouth

Liquid to be used in mouth are Gargle, mouthwashes, throat paints (1 mark for each description)

Gargle:- Gargles are clear aqueous solutions used to prevent or treat throat infections. They are brought into intimate contact with the mucous membrane of the throat and are allowed to remain in contact with it for few seconds, before they are thrown out of the mouth

Mouthwashes Mouth wash are aqueous solutions with a pleasant taste and odour used to clean and deodorize the buccal cavity Usually they contain antibacterial agent, flavouring agents,



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 30/ 35

sweetening agent and colouring agent Containers: dispensed in white fluted bottle they have to be Labeled : "Dilution of mouthwash before use" "For external use only"

Eg compound sodium chloride mouth wash B.P.C.

Throat paints there are viscous liquid preparation used for mouth and throat infection. Glycerin is commonly used base as it imparts viscosity to the preparation so it adheres for longer time to mucous membrane and also impart sweet taste to the preparation e.g Mendel's paint

Q6b)Write short note on stability of emulsion

A stable suspension can be dispersed homogeneously with moderate shaking and can be easily poured throughout its shelf life. There stability can be evaluated by following method (1 mark for each method)

a) Sedimentation Method - sedimentation volume is the most important parameter in the Evaluation of the stability of suspension. The sedimentation volume $F = H_u/H_o$ where H_u is the ultimate height of the total suspension and H_o is the initial height, than the graph of sedimentation volume can be plotted against time indicating sedimentation pattern

b) Rheological Method - The viscosity of suspension is studied at different time interval by using a good viscometer which provide good information about stability of suspension

c) Electro kinetic Method - the determination of surface electric charge or zeta potential helps in determining the stability of suspension, Zeta potential can be calculated from migration velocities of the particles measured by electrophoresis method.

d)Micrometric method stability of suspension depends on particle size so any change in particle size with reference to time will provide useful information, particle size distribution and crystal habit can be studied by microscopy and coulter counter method.

Q6C)Classify natural emulsifying agents

Natural emulsifying agent can be classified into two types (2 marks for each source)



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 31/ 35

1. Vegetable source – These are carbohydrates which includes gums and mucilaginous substances they are anionic in nature and they produce o/w emulsion. The following are some of the emulsifying agent in this class.

Acacia-it is best emulsifying agent for preparing extemporaneous preparation meant for internal use they stable over wide pH range(2-10).Emulsion prepared by using acacia has low viscosity therefore creaming takes place, to overcome this problem it can be used along with other emulsifying agent like tragacanth gum agar pectin etc.

Tragacanth-it is rarely used alone as it produce very viscous emulsion, stability and appearance can be improved by passing through an homogenizer. Tragacanth can be used with other emulsifying agent.

Pectin -1% mucilage is used as emulsifying agent it is incompatible alkalies, strong alcohol ,tannic acid and salicylic acid.

Starch –starch mucilage is rarely used as it coarse emulsion ,it is generally used for preparation of enemas

Irish moss –it is used as thickening agent it is used along with gum acacia to mask unpleasant odour in preparation of cod liver oil emulsion.

2.Natural emulsifying agent from animal sources

Wool fat –It is used for emulsion meant for external use ,it produces o/w emulsion and can absorb about 50% of water.

Egg yolk –meant for preparing extemporaneous emulsion meant for internal consumption it can get spoiled during transportation it is used in concentration of 12-15% it has to be store properly in a refrigerator.

Gelatin –It is used in concentration of 1% as emulsifying agent. It is used for emulsification of liquid paraffin, emulsion prepared by gelatin are white but they need preservative as they are



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 32/ 35

prone to bacterial growth.

Q6D) Define cosmetics. Discuss preparation for eye makeup

Cosmetics: The articles intended to be rubbed, poured, sprinkled or sprayed or introduced into or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance (1mark for definition)

Eye make up consist of (1 mark for each eye make up)

Eye shadow-They are preparation used to give attractive moist background to the eyes, they applied to eyelids, they are available in number of shades like blue green silver etc., they are available in various forms eye shadow creams, eye shadow sticks, eye shadow pressed powder, eye shadow liquids.

Eye brow pencils –They are hard crayons used for darkling the eyebrows they are available in brown and black shades, they contain iron oxide and high proportion of waxes to make them hard. They are manufactured by pencil manufacturer.

Mascara:- Mascara is black pigmented preparation for application to the eye lashes or eyebrow to beautify the eyes. It is used to darken eyelashes & to increase their apparent length. It is applied with the brush; they are available in various forms like cake mascara, cream mascara and liquid mascara.

Q6E)Define pyrogen .Give in detail, about pyrogen testing of parenteral

j)Pyrogens:-Pyrogens are the metabolic product of micro-organisms which increase body temperature. **(1 mark for definition and 11/2 mark for each test)**

Sham Test: Pyrogen testing done on rabbit: The test involves the measurement of rise in body temp. of rabbit following intravenous injection of a sterile solution of a substance being examined. Three healthy rabbits ,each weighing not less than 1.5 kg are selected. They are kept on balanced diet.& are not showing any loss body weight .The solution under test is injected slowly through ear vein in a volume of 0.5 to 10 ml/kg of body weight. Record the temperature of each rabbit in an interval of 30 mins for three hrs.



WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 33/ 35

after the injection. The difference between initial temp & the maximum recorded as response. If no rabbit shows an individual rise in temperature of 0.6 °C or more above its respective control temperature, and if the sum of the 3 temperature rises does not exceed 1.4 °C, the tested material meets the requirements for the absence of pyrogens. If 1 or 2 rabbits show a temperature rise of 0.6 °C or more, or if the sum of the temperature rises exceeds 1.4 °C, continue the test using 5 other rabbits. If not more than 3 of the 8 rabbits show individual rises in temperature of 0.6 °C or more, and if the sum of the 8 temperature rises does not exceed 3.7 °C, the tested material meets the requirements for the absence of pyrogens.

ii)**LAL test** is used for the detection and quantification of bacterial endotoxins.

Limulus ameocyte lysate (LAL) is an aqueous extract of blood cells (amoebocytes) from the horseshoe crab, *Limulus polyphemus*. LAL reacts with bacterial endotoxin or lipopolysaccharide (LPS), which is a membrane component of Gram negative bacteria.

The solution of endotoxins containing preparation is added to the lysate derived from heamolymph cells of horseshoe crab (*limulus polymhemus*). The result of the reaction is turbidity or precipitation or gelation of the mixture. This is used as a quantitative measure to estimate the endotoxin content. The rate of reaction depends upon conc. of endotoxins, pH, temperature and presence of clotting enzyme system and clottable proteins from lysate

Q6F) In what proportion should 10%, 8% and 2% sulphur ointments be mixed in order to obtain a mixture of 4% sulphur ointment

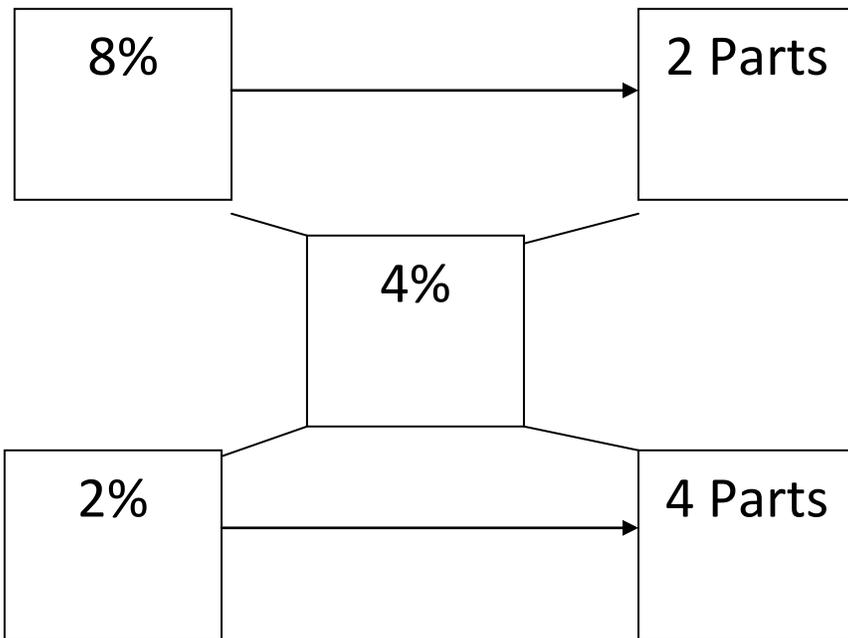
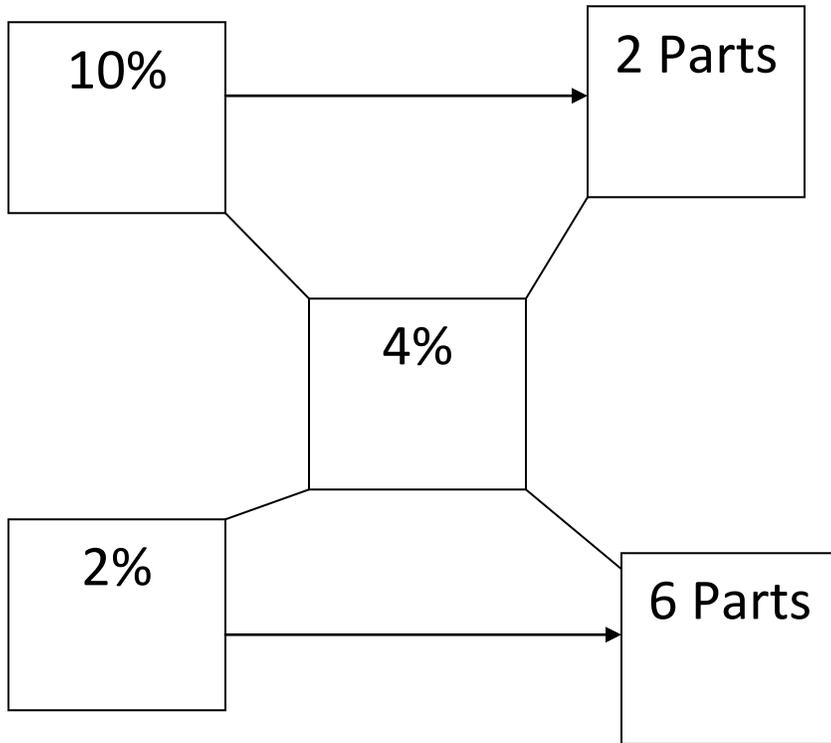


WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 34/ 35





WINTER – 14 EXAMINATION

Subject Code:811

Model Answer

Page No: 35/ 35

10% - 2 Parts

8% - 2 Parts

2% - 6 Parts + 4 Parts = 10 Parts