

Q1.

Ans) Rx

It is represented by a symbol Rx which is written before writing the prescription.

Rx is an abbreviation of the Latin word *recipe*, meaning you take. 'Take thou'.

In older days, the symbol was considered to be originated from the sign of jupiter, God of healing.

This symbol was employed by the ancient in requesting God for the quick recovery of the patient.

b) Proof Spirit

Proof Spirit is that mixture of alcohol and water at 51°F.

The strength of alcoholic preparations are indicated by degrees "over proof" or "under proof".

c) Examples of a drug which cause Tachyphylaxis

Ephedrine when given in repeated doses at short intervals in the treatment of bronchial asthma may produce very less response.

d) Young's Formula

$$\text{Dose for the child} = \frac{\text{Age in years} \times \text{Adult dose}}{\text{Age} + 12}$$

e) Emulsion

An emulsion is biphasic liquid dosage form containing two immiscible liquid, one of which is dispersed as minute globules into the other.

The globule size in emulsion varies from 0.25 to 25 μm diameter.

Types of emulsions:-

- (i) Oil in water type (O/W)
- (ii) water in oil type (W/O)

(i) Oil in water type

The oil is in dispersed phase whereas water is in the continuous phase.

The O/W type emulsions are preferred for internal use.

(ii) water in oil type

The water is in dispersed phase and

whereas oil is in the continuous phase.

The w/o type emulsions are mainly used externally as lotions or creams.

Q2

Ans① Incompatibility

Incompatibility refers to interactions between two or more substances which leads to change in chemical, physical, therapeutic properties of the pharmaceutical dosage form.

Incompatibility occurs as a result of mixing of two or more antagonistic substances and an undesirable product is formed.

Types of Incompatibilities

- a) Physical incompatibility
- b) Chemical incompatibility
- c) Therapeutic incompatibility.

b) Suppository

Suppository are semisolid dosage form of medicament for insertion into body cavity other than mouth.

- They may be inserted into vagina, rectum or nasal cavity.

- The medicament is incorporated into the suppository and product is formulated in such a way that they will either melt or dissolve in the body cavity fluid to release the medicament.
- Suppositories are available in different shape, size and weights.
- Suppository are used to produce local, systemic and mechanical action.

Advantages

- 1) These can be easily administered to children, old persons and to unconscious patients who cannot swallow the drug easily.
- 2) These are inserted into the rectum to ~~evacuate the rectum~~ to promote evacuation of the bowel.
- 3) Suppository are unit dosage form of drugs.
- 4) These are convenient mode of administration of drugs which irritate gastro-intestinal tract, cause vomiting and destroyed in the acidic pH of the gastric juice of stomach.

Disadvantage

- 1) The irritant drugs can't be administered by this route.
- 2) Suppositories cause embarrassment to the patient, when a drug is administered by inserting a suppository into a body cavity.
- 3) These cannot be prepared easily.
- 4) The suppositories are required to be stored at low temp. ranging from 10° to 20°C .

Q3

Ans

The factors affecting potency :-

The optimum dose of a drug which produces the desired therapeutic effect varies from person to person, because every individual varies both in the degree and character of the response produced by the drug.

Due to this reason the doses of official preparations of drugs are expressed in the form of a range which gives the therapeutic effect.

The following are some of the factors which influence the dose :-

1. Age :- The pharmacokinetics of many drugs changes with age, so while determining the dose of a drug, the age of an individual is of great significance. Children and old people need lesser amount of drug than the normal adult dose, because they are unable to excrete drugs to that extent as adults.

~~Children can~~

b) Sex :- Women don't always respond to the action of drugs in the same manner as it is done in men.

Morphine and barbiturates may produce more excitement before sedation in women.

Special care should be taken when drugs are administered during menstruation, pregnancy and lactation.

c) Route of administration :-

Intravenous doses of drugs are usually smaller than the oral doses, because the drug administered intravenously enters the blood stream directly.

d) Time of administration :-

The presence of food in the stomach delays the absorption of drugs. The drugs are

more rapidly absorbed from the empty stomach.
So the amount of drug which ~~are~~ is very effective when taken before a meal may ~~be~~ not be that much effective when taken during or after meal.
The irritating drugs are better tolerated if administered after meals e.g. iron, Arsenic and cod-liver oil should always be given after meals.

c) Synergism:-

When two or more drugs are used in ~~the~~ the combination form, their action is increased. The phenomena is called synergism.

e.g:- procaine and adrenaline combination, increases the duration of action of procaine.

f) Antagonism:-

When the action of one drug is opposed by the other drug on the same physiological system is known as drug antagonism.

e.g:- when adrenaline and acetylcholine are given together, they neutralise the effect of each other due to antagonism because adrenaline is vasoconstrictor and acetylcholine is

vasodilator.

3) Idiosyncrasy:

An extraordinary response to a drug which is different from its characteristic pharmacological action is called idiosyncrasy.

For example - A small quantity of aspirin may cause gastric haemorrhage.

h) Tachyphylaxis:

It has been observed that when certain drugs are administered repeatedly at short intervals, the cell receptors get blocked up and pharmacological response to that particular drug is decreased. The decreased response cannot be reversed by increasing the dose.

This phenomenon is known as tachyphylaxis or acute tolerance.

For example - ephedrine when given in repeated doses at short intervals in the treatment of bronchial asthma may produce very less response due to tachyphylaxis.

i) Metabolic disturbances:

Changes in water electrolyte balance and acid base balance, body temperature and other physiological factor may modify the effects of drugs. Salicylates reduce body temperature only in case an individual has rise in body temperature. They have no antipyretic effect if the body temperature is normal.

Q4

Ans ⇒ parts of prescription

prescription are generally written on a typical format which are usually kept as mad.

A typical prescription consist of following parts :-

- | | |
|---------|--|
| Heading | (i) Date |
| | (ii) Name, age, sex and address of the patient. |
| Body | (iii) Superscription |
| | (iv) Inscription |
| | (v) Subscription |
| Closing | (vi) Signature |
| | (vii) Renewal instructions |
| | (viii) Signature, address and registration number of the prescriber. |

(i) Date - It helps a pharmacist to find out the date of prescribing and date of presentation for filling the prescription.

The prescription which prescribe narcotic or other habit forming drugs, must bear the date, so as to avoid the misuse of prescription if it is presented by the patient, a number of times for dispensing.

(ii) Name, age, Sex and address of the patient - Name, age, sex and address of the patient must be written in the prescription because it serves to identify the prescription.

(iii) Supercription - It is represented by a symbol R_x which is written before writing the prescription. R_x is an abbreviation of the Latin word recipe, meaning 'you take.' (Take thou). In older days, the symbol was considered to be originated from the sign of Jupiter, God of healing. This symbol was employed by the ancient in requesting God for the quick recovery of the patient.

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(iv) Inscription — This is the main part of the prescription order, contains the names and quantities of the prescribed ingredients. The names of ingredients are generally written in English language but common abbreviation used can be written both in English and Latin language.

The name of each ingredient is written on a separate line along with its quantity. In complex prescriptions containing several ingredients the inscription is divided into following parts :-

- (a) Base — The active medicaments which are intended to produce the therapeutic effect.
- (b) Adjuvant — It is included either to enhance the action of medicament or to improve the palatability of the preparation.
- (c) Vehicle — It is included in the prescription either to dissolve the solid ingredients or to increase the volume of the preparation.
- (v) Subscription — This comprises direction to the pharmacist for preparing the prescription and number of

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doses to be dispensed.

(vi) Signature — This consist of the direction to be given to the patient regarding the administration of the drug.

It is usually written as 'sig' on the prescription. The instructions given in the prescription are required to be transferred to be label of the container in which the medicament is to be dispensed, so that the patient can follow it.

The instructions may include —

- (a) The quantity to be taken or amount to be used.
- (b) The frequency and timing of administration or application.
- (c) The route of administration.
- (d) The special instructions such as dilution direction.

(vii) Renewal instructions — The prescriber indicate on every prescription order, whether it may be renewed and if so how many times. It is very important particularly in the prescription containing the narcotic

and other habit forming drugs to prevent its misuse.

Viii) Signature, address and registration number of the prescriber - The prescription must bear the signature of the prescriber along with its registration number and address. It is very important particularly in the prescription containing the narcotic and other habit forming drugs, to prevent its misuse.

Qs

Ans

different types of incompatibilities

The incompatibilities are of three types -

- A) Physical incompatibility
- B) Chemical "
- C) Therapeutic "

A) Physical incompatibility

When two or more than two substances are combined together, a physical change takes place & an unacceptable product is formed. Physical

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incompatibility is usually due to immiscibility, insolubility, precipitate formation or liquefaction of solid materials.

Example -

(1) Immiscibility - Oils and water are immiscible with each other.

They can be made miscible with water by emulsification.

(2) Insolubility - Insolubility means the inability of material to dissolve in a particular solvent system.

(B) Chemical incompatibility

Chemical incompatibility may be a result of chemical interactions b/w the ingredients of a prescription & a toxic or inactive product may be formed.

Chemical incompatibility often occurs due to oxidation-reduction, acid base hydrolysis, or combination reactions.

Examples →

Alkaloidal incompatibility,
Soluble salts incompatibility
Miscellaneous Chemical incompatibility

C) Therapeutic Incompatibility

Therapeutic incompatibility may be a result of prescribing certain drugs to a patient with the ~~intention~~ intention to produce a specific degree of pharmacological action, but the nature or intensity of the action produced is different from that intended by the prescriber.

Concepts

This occurs due to the following reasons:-

- 1) Error in dosage
- 2) Wrong drug or dosage form
- 3) Contra-indicated drugs.
- 4) Synergistic and antagonistic drugs
- 5) Drug interactions