

02/11/17

Forensic Betterment Sessional Exam
II MBBS

23

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ROLL NO: 87
15M4300

1. Hanging is a ~~method~~ ^{method}, results in ~~type of asphyxia which is caused due to~~, the constriction of neck structures resulting in asphyxia. It is usually suicidal. The constrictory force is due to weight of the body. ~~It is hanging, i.e.~~

Types of hanging

- complete hanging :- In complete hanging, there is total suspension of the body from the ligature and body does not touch the ground.
- partial hanging :- partial hanging occurs due to incomplete suspension of the body from ligature and body will be in contact with the ground; constrictory force is from the part of a body.

POSTMORTEM FINDINGS

- ① If the knot is made by In case of right handed persons, knot is usually found to the right side as it is ^{easy} to do.
- ② face appears oedematous, pale and cyanosed.
- ③ If the knot compresses the salivary gland, then H dribbling of saliva is present.
- ④ Ligature mark will be oblique, the tissue will be contused on the region.
- ⑤ If the compression damages the cervical sympathetic ganglia to a side, then eye ~~is~~ opened and pupil will be dilated on the side. It is a characteristic feature of hanging. It is called Le facie sympathetique.

⑥ PM lividity is seen on dependent sites, sites are upper limbs and lower limb (towards the distal part).

⑦ If the hanging persist for more duration, hemorrhages are seen in the lower limbs.

⑧ In case of seawater drowning, postmortem severe pulmonary oedema is seen.

⑨ Presence of bleeding from nose/ear.

⑩ Thyroid cartilage is usually not affected.

SHORT ESSAYS.

2) RIGOR MORTIS.

After death, there is 1st flaccidity of muscles.

Continued by gradual stiffening of the muscles.

It is called rigor mortis. Rigor mortis occurs due to

the failure of resynthesis of ATP, so the muscles will be in contracted state.

Rigor mortis first sets in the eyelids, then followed by facial muscles, jaws, neck, upper limb, trunk, abdomen and finally lower limb.

Rigor mortis occurs after 6 hrs after death.

R

3) POSTMORTEM FINDINGS IN DROWNING

EXTERNAL

- ① clothes are wet
- ② skin is cold, clammy
- ③ body temperature falls to the temperature of water.
- ④ cutis anserina :
contraction of the
arrector pilorum,
appears like goose skin.
- ⑤ In females, particularly
palms and soles, there
is wrinkling, reddening
called washerwoman
hand.
- ⑥ Postmortem lividity
is seen in hands and
upper trunk if the
body is lying with
limbs up and
hands suspended down,
usually prominent in stagnant water.
- ⑦ Froath: appears due to
the ~~water~~ entry of
water into lungs and
causes irritation, leading
to froath formation
appears in the form
of balloon or
mushroom.
- ⑧ presence of dirt, fungus,
plant on the hand due to
during asphyxiation

INTERNAL

- ① airway passages are
filled with fluid,
dist
- ② presence of water in
stomach and lungs.
which are not potable
is a characteristic
feature of drowning.
- ③ Pulmonary hemorrhages :
hemorrhages are seen in
lungs, which caused due to
rupture of interalveolar
bridge
- ④ lungs appear oedematous
spongy, puffy appearance.
- ⑤ injuries can be seen when
falls from height to a
hard structures on river,
pond.
- ⑥ Blood is usually
fluid, minimal blood clot.

④

⑥ Heat haematoma

SHORT ANSWERS

⑦ ADIPOCERE : It is late changes in death.
It mainly occurs in persons of obesity. Adipocere is characterised by hydrogenation of fats, which flows down the process of putrefaction. Person can be identified during the process. Due to production of gas, produce foul smell.

⑧ TRANSVESTISM : It is a paraphilia, in which sexual gratification is achieved by wearing dress of opposite sex. Death of such persons resembles auto-erotic death. It is usually caused due to organic brain damage.

⑥ HEAT HAEMATOMA

① In case of heat leuven, organs appears cooked and appears as haematomas. Brain appears as extradural haematomas in case of leuven death.

5. MEDICAL FINDINGS IN RAPE VICTIM.

- 3 1/2
- 1) pubic hairs appears matted.
 - 2) Hymen is torn.
 - 3) Bruise in vagina.,
 - 4) fresh / dried semen in vagina
 - 5) swelling, inflammation of the anal / vaginal area.
 - 6) Bite marks are present on the breast, thighs
 - 7) bruise / abrasions over the anal canal.
 - 8) Vulva is damaged.
 - 9) presence of nail.

9. CAPE CORONARY SYNDROME

1 1/2

In a grossly per normal person who is intoxicated, while eating ~~dead~~ dies due to suffocation. It is because while intoxicated, gag reflex are inhibited and food when food enters, and reaches the larynx, person chokes and resulting in death due to asphyxia.

SHORT ESSAY.

4) NARCOANALYSIS

It is a method employed in forensic science to find and rule out the different kinds of drugs and poisons. Narcosis helps in finding out whether a person was intoxicated during the event.

25/50

Prajwal phinehas

149.

15MH264.

Betterment Examination

Short essay:-

1) Civil Responsibility of a mentally ill person.

1) Management of property :- The same person is not aware of his responsibility and his decision making is not worthy about property. For such person's government appoints a Manager. So that he can keep a check and ~~maint~~ maintain and show to authorities ~~and~~ every 6 months or annually. Manager is given ~~consent~~ ~~to the~~ by the ~~prop.~~ income from the property of insane.

2) Contract of Marriage.

If a person is sane and mentally ill then the marriage is considered as nullity or void.

3) Guardianship or adoption

A sane person cannot adopt anyone and even he cannot give guardianship to anyone.

4) Contracts.

→ If a sane person signs a contract it is not valid.

→ If he does it in a lucid interval then it ~~might~~ is valid.

5) Competency of witness :- If an insane is a witness then it is not valid because he can't make decisions properly.

6) Consent :- Consent is also invalid.
It is valid if he is in lucid period.

4) Duties of Doctor in a case of suspected poisoning.

→ First the doctor should treat that is the primary step.

→ ~~Next~~ The information should be ~~to~~ ^{informed} ~~told~~ to police.

→ In case of food poisoning public health sections should be informed.

Govt Hospital



All cases of poisoning should be informed homicidal suicidal.

Private Hospital

only cases of Homicidal.

→ Taking a proper history of patient and if any symptoms are present, treating the patient and asking the proper history of food, items, ~~smell~~, smell, route of administration should be asked.

→ collecting the evidence

The evidences such as food articles, ~~papers~~ empty bottles and stains of sheets, and discharge of any ~~excreta~~ fluid should be collected for evidence

→ If in case it is suspected, then shift ~~to~~ the patient to a trusted nurse and ~~only food~~ no one is given food and all is given

- If patient is conscious arrange a dying declaration
→ If patient dies. don't hand over to patient party Body
Should be handed over to police for P.M.

5) Mechanism of action and clinical features of acute organophosphorus.

Organophosphorus poisoning is due to the phosphate group.
Site of action: Myoneural Junction or Neuromuscular Junction.
M.O.A: Phosphate binds to → Inhibits phosphorylation → Inhibits the action of ACh → Accumulation of ACh in parasympathetic.
Sympathetic & somatic nerves ~~are not acting in nerves~~ → Repeated action.

It is also known as choline esterase inhibitors.

It is also known as choline esterase inhibitors.
→ Route of entry by inhalation is faster than dermal.

Clinical features.

Muscarinic effects.

Dysphagia.
~~Miosis~~ Miosis
Bradycardia.
Bronchorrhea.
Lacrimation
Salivation.

Nicotinic effects

Twitching of eye lids
repeated actions.
leads to ataxia.

CNS effects

CNS depression.
depression, Gait, ~~loss~~
→ mental retardation.
→ Slurred speech.
→ coma in severe condition &
Death may also occur

6) Plumbism.

Plumbism is due to the lead poisoning.
Source:- from varnish, wood oil, nail paints, Sindhori in females.

~~Not potent chemicals.~~

Storing of water in ~~lead~~ Metals. Jars.
Eating of glue or stored food by heaving of Metal Jars.
Accidental ingestion in children. ~~Glue~~

Dose:- 1-2mg of lead daily.

M.O.A :- It goes binds to the SH group of the ~~proph~~ porphyrin.
Synthesis. • it competes and binds to the SH group.

③ Symptoms

- Blue lines of the gums ~~gums~~
- Anemia
- Microcytic hypochromic anemia.
- pallor.
- weakness.
- icteric
- myalgia.



Diagnosis

Blood is diagnosed

↑ in Reticulocytes

↓ in RBC count.

Treatment → specific

~~Ca~~ (Ca-EDTA)

→ BAL. (British Anti-Lewis).

In this there acts like chelating agent in which it combines with
molecule of lead with two molecule of BAL. Eliminates them in
bile or urine.



→ Treatment of snake bite.

- Reassure the patient.
- Immobilize the limb.
- Get to the hospital.
- Treat the patient's with any ~~systemic~~ Systemic symptoms.

Supportive treatment

- cut the wound in cross direction till blood and lymph drains out.
- Wash it with ~~water~~ saline water.
- Give Benzodiazepam in case of sedation and anxiety.
- use of Antibiotics.

Specific treatment

- polyvalent Anti-snake venom is given. 3 1/2
- for 4 snakes
- 1mg of polyvalent snake venom stabilizer 0.6gm of Key cobra.
- and 0.45g of Russell viper & saw scaled.
- give 2mg IV infusion of ~~ASV~~ polyvalent ASV.
- give 5ml/kg body in iv fluids.
- It is given during the period of 6 hours. More than that.
- ~~it~~ it won't be effective.
- Neostigmine is given if serum sickness occurs.

10) Medico-legal importance of Datura poisoning.

Ideal road side poisons.

Clinical features

- Drowsiness.

Dryness of mouth

Dysphagia.

Drunken gait

Delirium.

Death due to respiratory failure.

Death.

Dementia.

Depression.

Medico-legal importance

→ Homicidal - Rare

→ Suicidal - In rural areas

→ Steupfing agent :- It is crushed as seeds and made it into powder and then it is used for the steeping.

for hobbery rape or murders.

It is also burnt as incense sticks.



Fatal dose

50-100 seeds.

PM appearances

External

→ Frothy fluid around mouth.

→ Cyanosis.

Internal

→ Presence of seeds in the

L.I.T.

→ Gastric antrality.

→ Thickened intestines.



Q) clinical features and treatment of Methyl alcohol poisoning.

Clinical features

- Irrit, ~~irrit~~ Slurred vision,
- Photophobia.
- Ataxia
- Slurred speech.
- Restlessness.
- Improper coordination of movements.
- Death due to Respiratory failure.

Treatment of Methyl alcohol poisoning.

- Ethyl alcohol is given ~~as antidote~~ it completely inhibits for the methyl alcohol.
- The Rate of metabolism reduces when Ethyl alcohol is given.

3) Polygraph

Polygraph is a test used in criminals for obtaining the truth where all the vitals are checked and controlled by doctor.

- In this patient will be in unconscious and not fully unconscious.
- He might answer the ~~simple~~ wrong ones where the machine raises all its activities.

2) Restraint of Mentally ill person

Restraint of Mentally ill person is done where he is harming his own self or others and their property or injuring himself.

→ Immediately ~~the~~ he should be ~~ad~~ put in a room and should be admitted to psychiatric hospital.

→ Consent of one guardian is required for him.

→ If he does not have any care takers or any then, he is handed over to government Mental hospital.

→ ~~Further~~ the two doctors are do inspection
→ He should have a medical certificate from the physicians
treatment before

→ If he does not have he is counselled by 2 doctors
prompts to prove him mentally ill

→ After he is fine then he ~~can~~ has the freedom to go.



FATHER MULLER MEDICAL COLLEGE

DEPARTMENT OF FORENSIC MEDICINE

NAME :

Basavaraj. M. Pujari

ROLL NO. :

15M4214

EXAM :

Bitterment Sessional Examination

DATE :

17-10-18

Long Essay

1. Define Inquest. Mention type of inquest. Describe the police inquest.
- Inquest refers to an investigation carried out to find out the circumstances, cause and manner of death.

Types

- i) Police inquest
- ii) Magistrate's inquest
- iii) Coroner's inquest and
- iv) Medical Examiner's inquest.

Police inquest (Procedures)

- * It is conducted by a Police officer incharge of a police station.
- * When police officer is informed about an unnatural death, he brings it to the notice of magistrate and proceeds to the place of death.
- * Police inquest is started in presence of respectable neighbourhood called "Pancha's".
- * All the evidences are collected from the crime spot. and a report is prepared, which is called "Panchanama" or "Inquest report".
- * Panchama is signed by Pancha's and 2 more witnesses.
- * If the police seems ~~the death~~ is some foul play or

* Once the magistrate arrives, Magistrate Inquest is ~~arrived~~ carried out.

* All the evidence collected from the spot.

* For further investigation, body is sent for the post mortem examination / Autopsy along with a requisition signed by police and magistrate.

Police Inquest

→ It's widely spread in India.

→ Almost all states carry out Police inquest.

→ Other inquests are normally not seen.

Short Essay.

3. Professional misconduct

→ An act or behaviour done by a medical professional which is ~~degra~~ considered disgraceful / dishonourable by his professional colleagues of good repute, amounts to Professional misconduct.

② It's quite difficult ^{to decide} if an act done by a doctor is a misconduct or not.

However there are 6 A's, which are considered to be Professional misconduct.

① Abortion

→ Abortion without any valid cause mentioned under MTP act amounts to Professional misconduct.

The reason being, ② The female fetus
③ To

② Adultery

→ ~~A~~ A doctor is supposed have a good character and behave like a gentle man with his patient, patient's party and attendants. If he is ~~found~~ caught in cases like adultery, he will be punishable

③ Alcohol

→ A doctor should not be under influence of alcohol or have alcohol whenever he is going to treat a patient. If he ~~is~~ has consumed, that is misconduct

④ Addiction

→ Taking advantages of easy accessibility of drugs, a medical professional should not be using any substance of abuse or not be addicted to it.

⑤ ~~Association~~ Advertisement

→ Any doctor should not advertise his specialized skills,
* He should not specify the fees for treatment publicly.
* He should not mention ~~times~~ working hours publicly.
* Name plate should not be over sized, emphasizing.

⑥ Association

→ ① Dichotomy - a doctor should not split the money if he refers a higher doctor, to a patient, as he did not give treatment to patient. Or either with pharmacist.

② A doctor should not associate with unqualified candidates and practice medicine

4 Consent in medical practice

→ Consent is willfull agreement to a particular procedure or examination to be performed by a doctor.

①



5. Objectives of medico-legal autopsy

→ The objectives of Medico-legal autopsy / post mortem examination are as follows

- *) To find out cause of death and manner of death
- *) To find time since death
- *) To find the identity of the dead (if body is putrefied & in other conditions)
- *) To find the secondary cause i.e. disease which caused the death
- *) To find out underlying diseases which do not actually cause the death, if any.
- *) To collect the specimen for further investigation
- *) To find out the ~~any~~ weapons used in attack, if any
- *) injury present over the body.
- *) In cases of Infant death
To find out if infant was dead / alive at the time of birth in cases of dead infant.
- *) And to know the cause of death of Infant.

Short answers

6. Summons

→ It's a legal notice to the witness to attend the court during the trial to give ~~an~~ evidence.

Medico-legal importance

① It's punishable, if a person rejects summons without genuine reasons or signs it and does not attend the court.

Only, if in emergencies or very important reasons a person can be absent to court

For Medical Professionals

In Civil cases, an amount of money usually paid to Medical Officer who has to travel from his place of residence to court and back. In case he doesn't get the amount / if he feels it less, he can just ignore the summon. This money is called "Conduct money."

However in Criminal cases, no such amount is paid. A doctor is expected to come and give evidence as it is duty of every citizen of India to come to court to give evidence.

7. Res ipsa loquitur

→ "The thing speaks itself."

① In ^{some} cases of medical negligence, it is evident by the circumstances that, the defendant (doctor) is most probably the guilty.

② The patient (Plaintiff) need not prove doctor's negligence.
e.g. Amputation of wrong leg or for
Surgery on a wrong area etc.

→ However the doctor has to prove that ~~he is~~ not the mistake is not his doing (if it is), in cases like mistakes by attendants, nurses etc.

8. Exhumation

→ It's a legal digging out of an already burned dead body.

Exhumation should be conducted in presence of Magistrate,

Police, Medical officer and family member/ friend to identify.

Objectives

① carried out in presence of magistrate.

① If any suspicion arises regarding investigation

② Medico-legal

③ In cases of wrong identification

④ In disputes of property

⑤ Parental dispute

Procedure

① The burial area should be identified properly

② Should be carried out during sunlight

③ Avoid spectators. The soil should be removed.

④ ~~Sketch~~ a Photograph the corpse in ^{same} condition.

⑤ Let the family identify the body.

⑥ 1/2 kg soil is to be collected (in case of mineral poisoning)

⑦ And burial cloth is collected

⑧ Body is sent for second autopsy, with a request form signed by police & magistrate.

9. Types of incisions used in medical autopsy.

For Thorax

① I shaped incision

→ most common incision starting from chin (Symphy ~~888~~ menti) to Pubic symphysis, passing ~~right~~ / left side of ~~umbilicus~~ to avoid the cut.

② Y shaped incision

→ Starts from mastoid process behind ear, proceeds medially downwards and meet the corresponding incision from other side at supra sternal notch. From there again it extends upto pubic symphysis ~~avoiding~~ obliterating near umbilicus

③ Modified Y incision

→ Starts from the region near acromion process runs down breast and continues ~~to~~ across xiphoid process meets the other one. From the common incision extends upto pubic symphysis

For Scalp

~~Coronal~~ incision

Coronal incisions

→ the incision are made in the occipital region of the scalp

11/05/18

CHEMOTHERAPY

KHATHIJA SANA

IMPROVEMENT TEST -

DEPT. OF PHARMACOLOGY
MULLER'S MEDICAL COLLEGE
MANGALORE - 575 007

ISM4246

1. 2 Advantages of Amoxicillin over Ampicillin
2. What is Probiotic. Give 2 examples
3. Superinfection
4. 2 uses and adverse effects of sulfonamides
5. Write 4 uses of fluoroquinolones
6. Mechanism of action of Penicillin
7. List four common properties of Aminoglycosides
8. Write 2 uses and 2 Adverse effects of Erythromycin
9. Write 2 uses and 2 adverse effects of Rifampicin
10. Lepra reactions.

Answers

8. Erythromycin

Uses :

- i) Streptococcal infection : Erythromycin is the drug for streptococcal infection
- ii) Diphtheria : It is given in patients suffering from Diphtheria

Adverse effects :

- i) Hepatitis with cholestatic jaundice is commonly seen
- ii) Epigastric disturbances like Nausea, Vomiting can also be seen.

9. Rifampicin

Uses :

- i) Mycobacterium tuberculosis. It is the first line drug used for this along with other drugs.
- ii) P. Tetovoki infection. Rifampicin can also be used for this infection

Adverse effects :

- i) Peripheral Neuropathy
- ii) Hepatotoxicity

10. Lepra reaction

It is an acute inflammatory reaction

They are of 2 types

Lepra I and Lepra II reaction

Lepra II reaction is also called Erythema nodosum reaction

1. Following are the advantages of Amoxicillin over Ampicillin :-

• Less toxicity

IMPROVEMENT TEST -

DEPT. OF PHARMACOLOGY
MULLER'S MEDICAL COLLEGE
MANGALORE - 575 007

ISM4246

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1. Following are the advantages of Amoxicillin over Ampicillin :-
- Amoxicillin

7. Following are the properties of Aminoglycosides:-

- It acts on both gram positive and gram negative bacteria.
- There are lesser adverse effects.
- They have longer duration of action.
- Aminoglycosides inhibit protein synthesis.

2. Sulfonamides

uses:-

i) Bacterial infections

Adverse Effect:-

Nausea, Vomiting

5. Fluoroquinolones

uses:-

- It can be given in urinary tract infection.
- Also given in bacterial infection.

7 1/2 / 20

Ph

FATHER MULLER MEDICAL COLLEGE

DEPARTMENT OF BIOCHEMISTRY

ANSWER BOOKLET

Marks Scored

137

Name : ROSHAN TOM JOSE

Roll No. : 109

Course : 1st MBBS

Date : 28/08/2018

THEORY / PRACTICAL

Examination : I / II / III SESSIONAL

Signature of the Candidate

6/20

Maximum Marks =

Q. No.	Answered (✓)	Marks Obtained	Signature/Remarks
1.	✓		
2.	✓		
3.	✓		
4.	✓		
5.	✓		
6.	✓		
7.	✓		
8.	✓		
9.	✓		
10.	✓		
11.	✓		
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21.			
22.			

I LONG ESSAY

1. * Replication is a process of reproduction of DNA from an existing strand of DNA. Replication takes place in prokaryotes. The process of production of new daughter DNA strands from existing DNA strand is called replication.

* Replication in prokaryotes takes place in various steps. The process are as follows:

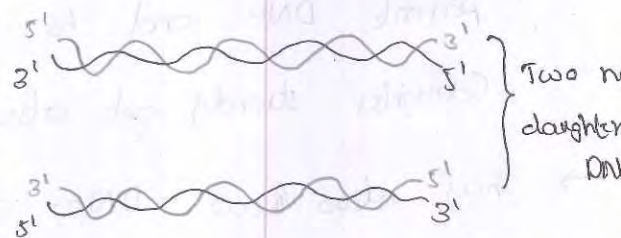
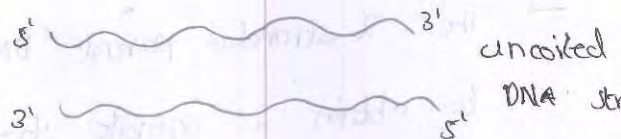
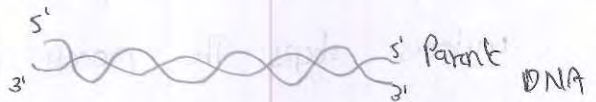
- A two stranded parent DNA is taken to replicate. The parent DNA has 2 strands,
- The 2 stranded parent DNA begins uncoiling to obtain 2 separate strands.
- After uncoiling, each strand act as a parent DNA and to this new strand (daughter strands) get attached.
- Thus two new DNA are formed from a single parent DNA.

* This method of replication is termed as "Semi-conservative" replication.

⇒ Inhibitors in replication are those or substance, that help in terminating the process of replication. Inhibitors terminate replication, thus preventing reproduction.

eg: Acids, stop codon, drugs, pH change

Replication:



II SHORT ESSAY

2. * Heme is a product that is formed from the compound "hemoglobin". Hemoglobin is an important substance present in blood and is a major content.

* When globin chain is detached from hemoglobin it produces heme. The process of degradation of heme is very important as the degraded heme is converted into bilirubin.

* Heme degradation is the major source of bilirubin formation in human body. Thus degradation of heme is very important.

3. Vitamin C

* Vitamin C is an essential vitamin, for humans for the proper control and functions of body.

* A proper diet rich in vitamin C ensures proper function and control of body.

Functions of vitamin C

- Vitamin C helps in improving iron absorption.
- Vitamin C helps in metabolic functions.
- Vitamin C helps in building of bones and teeth.
- Vitamin C helps in control of certain hormones.

⇒ Deficiency of vitamin C leads to a disease condition known as scurvy.

It is mainly affected by children.

⇒ Children with scurvy have blood oozing from the gums, swollen joints, and bleeding from the skin.

4. * Dietary fibres are substances that are an important part of a diet. A diet should be properly balanced with sufficient amount of dietary fibres.

* Water, and other certain substances and nutrients are examples of dietary fibres.

* Dietary Fibres are those which help in digestion and proper balance of nutrients and minerals in body. They help in metabolism by maintaining the homeostasis.

Functions

- * Help in balancing pH of food
 - * Help in proper digestion and absorption.
 - * Help in diet control.
 - * Help in metabolism and other functions.
-

5. Buffers

* Buffers are important substance that help in acid-base balance of body. They are a major substance that helps in the pH balance.

* According to pH of buffers, they are classified into two types:

- Acid buffers
- Basic buffers.

* Acidic buffers are those buffers which contain more acidic groups (COOH^+ ions) and helps in balancing basic character to acidic.
eg: HCl , KCl etc...

* Basic buffers are those buffers which contain more basic groups (COH^+ ions) and helps in balancing acidic character to basic.
eg: NaOH , KOH etc...

* The buffers then gives OH^- or H^+ in order to balance the acid-base body.

6. Clearance Tests

→ Clearance tests are those tests that is done to determine the proper functioning, retention and excretion of certain substance in body.

→ Clearance tests are of many types

eg: Urea clearance test

Insulin clearance test

→ These clearance tests help in determining the proper secretion of these hormones/excretion of substance etc....

Significance

- Clearance tests are done in laboratory to determine the function of certain hormones.
- Clearance tests help in determination of diseases.

III

SHORT ANSWERS

7.

Specific Dynamic Action

Specific dynamic action is defined as the action of a substance to a specific stimulation. That means, action of substance like hormones to certain stimulation, either to decrease or increase the stimulation, is specific to the stimulant is called specific dynamic action.

8. Wilson's Disease

Wilson's disease is a disease condition in which the subject is unable to produce certain metabolic products. The disease is caused due to the deficiency of vitamin D.

Wilson's disease can be controlled and cured by proper diet of vitamin D, having sufficient sunlight to skin.

9. Functions of calcium

* Calcium is an essential mineral required for human beings. Calcium performs many functions and is essential for proper coordination of body.

→ Calcium helps in muscle contraction and relaxation or retraction of muscles.

→ Calcium helps in building of bones.

→ Calcium helps in release and secretion of certain hormones in body, also activation of certain metabolic substance.

→ Calcium helps in synthesis of other important substance and compounds.

Tumour Markers

- Tumour markers are substance that is released from tumour cells or tumour sites. The presence of tumour markers helps in detection of cancer in body.
- Various tumour secrete various tumour markers. The presence of high amount of tumor markers shows later stages of secretion.
- Tumour markers also help in determining the stage and also checking their during curing also helps in improving treatment of cancer.

eg: Brain tumour

Colon tumour

11. Acute Intermittent Porphyria

* It is a type of diseased condition which is caused due to the deficiency of ~~hemin~~ ^{oxygen} dissociation in blood.

* Acute Intermittent is a serious condition of porphyria which should be treated clinically.

* Porphyria is caused due to deficiency of oxygen content in blood.

11/05/18

#CHEMOTHERAPY

KHATHIJA SANA

DOCUMENT TEST -

DEPT. OF PHARMACOLOGY
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MANGALORE - 575 007

ISM4246

1. 2 Advantages of Amoxicillin over Ampicillin
2. What is Probiotic. Give 2 examples
3. Supra-infection
4. 2 uses and adverse effects of sulfonamides
5. Write 4 uses of fluoroquinolones
6. Mechanism of action of Penicillin
7. List four common properties of Aminoglycosides
8. Write 2 uses and 2 Adverse effects of Erythromycin
9. Write 2 uses and 2 adverse effects of Rifampicin
10. Lepra reactions.

Answers

8. Erythromycin

uses:

- i) Streptococcal infection: Erythromycin is the drug for streptococcal infection
- ii) Diphtheria: It is given in patients suffering from Diphtheria

Adverse effects:

- i) Hepatitis with cholestatic jaundice is commonly seen
- ii) Epigastric disturbance like Nausea, vomiting can also be seen.

9. Rifampicin

uses:

- i) Mycobacterium tuberculosis. It is the first line drug used for this along with other drugs
- ii) P. Tetovaki infection: Rifampicin can also be used for this infection

Adverse effects:

- i) Peripheral Neuropathy
- ii) Hepatotoxicity

10. Lepra reaction

It is an acute inflammatory reaction

They are of 2 types

Lepra I and Lepra II reaction

Lepra II reaction is also called Erythema nodosum reaction.

1. Following are the advantages of Amoxicillin over Ampicillin:-
- longer action

7. Following are the properties of Aminoglycosides:

- It acts on both gram positive and gram negative bacteria.
- There are lesser adverse effects.
- They have longer duration of action.
- Aminoglycosides inhibit protein synthesis.

2. Sulfonamides

Uses:

i) Bacterial infections

Adverse Effect:

Nausea, Vomiting

5. Fluoroquinolones

Uses:-

- It can be given in urinary tract infection.
- Also given in bacterial infection.

7½/20

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11/05/18

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Pharmacology

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1) 2 Advantages of Amoxicillin over
Ampicillin

2) What is Probiotic? Give 2 Examples

3) Suprainfection.

4) 2 Uses & 2 Adverse effects of Sulphonamides

5) 4 uses of fluroquinolones

6) Mech of action of penicillin

7) List 4 common properties of Aminoglycosides

8) 2 uses & 2 adverse effects of Erythromycin.

9) Write 2 uses & 2 adverse effects of Rifampicine

10) Lepa Reaction.

Answers

③ Suprainfection : Infection which precedes a bacterial infection
is called Suprainfection.

e.g: Fungal infections.

B

① a) Faster Acting & food doesn't interfere with absorption

b) More effective than Ampicillin.

② Probiotics : ~~Artificial~~

A Substance which enhances the growth of Normal
Commensal flora of the body

e.g: Artificial drinks (Yakult), Curd

④ uses: Treatment of Pneumonia
used as a combination drug is cotrimonasole.

✓/X

⑤ uses: A typical Pneumonia

→ Meningitis

→ UTI

→

✓/X

⑥ Penicillin Inhibits crosslinking of Peptidoglycan chains & thus inhibit cell wall synthesis.

→ Bactericidal in Nature

→

Penicillin



Inhibits Cell wall
Synthesis



Bactericidal Action

✓/X

⑦ They are poorly absorbed when taken orally.

✓/X

5/20

✓

Impendent Test

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Roll No: 11

① Two advantages of amoxicillin over ampicillin

- Answer: ② Amoxicillin is longer acting drug
③ Can be taken after food.

② What is probiotic? give 2 examples

Answer: Probiotic is any drug that helps restore the flora of the gut. Promotes growth of microorganisms
Ex: Lactic acid bacteria in curd.

③ Supra infection

Answer: This is a type of infection that occurs during the course of the primary infection

④ Two uses & 2 adverse effects of sulphonamides

Answer: Uses
① Drug of choice in the treatment of UTI

Adverse effect

② Crystalluria in nature due to alkalinity
pH

③ used in the treatment of syphilis

④ causes hypersensitivity reactions

⑤ Write 4 uses of fluoroquinolones

Answer: ① used in the treatment of UTI

② used in treatment of diseases caused by gram negative bacteria

③ used in treatment of typhoid fever

⑥ Mechanism of action of penicillin

inhibition of $\downarrow$ cross linkage of peptidoglycan chain
 $\downarrow$
inhibition of cell wall synthesis
 $\downarrow$
lysis of pathogen

⑦ List 4 common properties of Aminoglycosides

①

⑧ write 2 uses & 2 adverse effects of erythromycin

uses

diphtheria

→ Treatment of ~~diphtheria~~

→ Treatment of Gram positive bacterial infection

⑨ write 2 uses & 2 adverse effects of rifampicin

uses

Treatment of tuberculosis

adverse effects

hypersensitivity

⑩ Lepna reaction

8 1/2 / 20

1) Antimicrobial combination

Antimicrobial combination is when the drugs given separately don't have much action but when given together like a combination they have more action.
eg. Cotrimoxazole is a combination of Sulfamethoxazole and Trimethoprim. When given separately both have bacteriostatic action but given together they have bactericidal action (ratio is 1:5) (Sulfamethoxazole - Trimethoprim)

2) β -lactamase inhibitors

- β -lactamase inhibitors are clavulanic acid, sulbactam and tazobactam
- β -lactamase inhibitors are those that inhibit the action of β -lactam antibiotics by breaking the ring
- They cannot be given alone, always given as a combination -
 - Clavulanic acid + ampicillin
 - Sulbactam + amoxicillin
 - Tazobactam + piperacillin

3) General properties of aminoglycosides:

- Binds to 30S ribosomes
- Only act in alkaline pH
- Prevents protein synthesis
- Has bactericidal effect
- Causes misreading of mRNA and terminates protein synthesis
- Example of ~~short acting~~ ~~Tetracycline~~ aminoglycosides is amikacin, kanamycin

4) Third generation cephalosporins

Cefotaxime, Ceftriaxone, Cefixime.

Uses:

(i) Gram negative infection

(ii) Gonorrhoea

(iii) Meningitis

(iv) Typhoid

5) Tetracyclines contraindicated in children and pregnancy:

Tetracyclines are contraindicated in children and pregnancy because

(i) Because of their action on teeth and bones

(ii) Can cause hepatic necrosis

(iii) Can cross placental barrier and cause issues

6) Cotrimoxazole - Uses:

• Used in Urinary tract infections

• Used in Chancroid

• Used in pneumocytic pericervical infection

• Used in respiratory tract infections

7) Macrolides

Macrolides are Erythromycin, Azithromycin, Clarithromycin.

Newer macrolides are Telithromycin

Advantages

Azithromycin is longer acting and has better tissue penetrability compared to Erythromycin. Azithromycin is pH acid stable.

- Azithromycin is effective against *Mycobacterium avium* complex, *H. pylori*, ~~*Haemophilus influenzae*~~ and *Toxoplasma gondii* as erythromycin is not.

8) Superinfection:

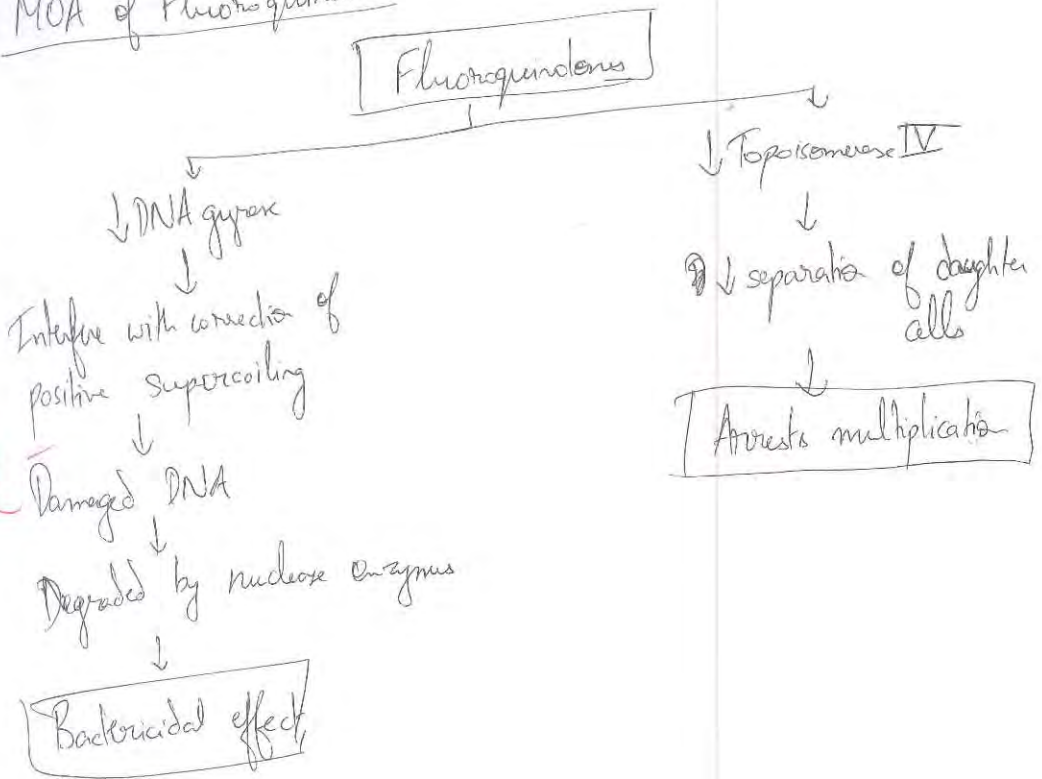
• Superinfection / suprainfection is when there is onset of newer infections in a person because of the use of antimicrobials.

• The common sites are genitourinary, gastrointestinal and respiratory sites.

• This can be prevented by ~~the use~~ reducing the use of broad spectrum and using narrow spectrum antibiotics.

• By stopping the misuse of antibiotics for smaller reasons.

9) MOA of Fluoroquinolones



10) Uses of penicillin G:

- 2 1/2
- Anthrax
 - Gangrene/Tetanus
 - Meningococcal infection

6)

7) 1

2'

FATHER MULLER MEDICAL COLLEGE

DEPARTMENT OF BIOCHEMISTRY

ANSWER BOOKLET

BIOCHEM IMPROVEMENT TEST

Marks Scored

27/1

Name : ROHITH M R

Roll No. : 107

Course : IMBBS

Date : 14-06-2017

THEORY / PRACTICAL

Examination : I / II / III SESSIONAL

Signature of the Candidate

Rohith

Maximum Marks =

Q. No.	Answered (✓)	Marks Obtained	Signature/Remarks
1.			
2.	✓		
3.	✓		
4.	✓		
5.	✓		
6.	✓		
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II

3) Enzymes are biocatalysts which increase or decrease rate of the reaction without being consumed in the process.

Mechanism of action:

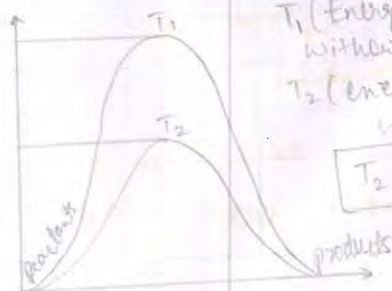
Reactants should ~~possess~~ ^{possess} certain amount of minimum energy in order to be converted to products. This minimum energy required by the reactants or substrates for a reaction is called Activation energy.

Enzymes act by decreasing the activation energy of the substrate molecules, and thus ~~take~~ ^{take} them a different reaction pathway which requires the less activation energy. Thus, the rate of the reaction increases and the reaction becomes faster.

In a reaction, the reactant molecules acquire certain energy and reach a state called transition state. Enzymes act by decreasing the energy of the transition state of the reactant. Thus, when

Thus, when two reactions are considered, one catalysed by enzyme and the other ~~without~~ not catalysed by enzyme, the energy of the transition state in the reaction catalysed by enzyme will be less compared to the reaction not catalysed by enzyme.

↑
Activation energy



T_1 (Energy of transition state without enzyme)
 T_2 (Energy of transition state with enzyme)

$$T_2 < T_1$$

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is trapped as NS methyl THF. This is called folate trap and it leads to folic acid deficiency.

2) pernicious anemia:

Cobalamin deficiency causes a disease called pernicious anemia.

It is characterized by,

- low haemoglobin content and low erythrocyte count
- neurological manifestations like loss of memory, depression, irritability, insomnia
- weakness, & loss of weight is also seen.

~~5) Balanced diet is a diet which contains all the nutrients in adequate quantities and proper proportion~~

5) Balanced diet is a diet which contains all the like carbohydrates, proteins, lipids, vitamins, minerals and water in adequate quantities and sufficient proportion to maintain ~~to~~ maintain good health & normal well being and proper functioning of mechanisms.

The components of balanced diet are:

- 1) Carbohydrates: They are the primary source of energy for our body. Required for normal body functions and the major source of energy (about 60% of the total energy).
- 2) Proteins: They are the building blocks of our body which act as chemical messengers, enzymes.

act as biocatalysts are proteins. ~~Plasma proteins also play~~

3) Lipids: Provide energy during starvation and act as a carrier of fat soluble vitamins. cholesterol is a lipid and is very vital for body functions.

4) Vitamins and Minerals: They are essential for the normal functioning of the body and has to be taken in adequate quantities. They are required for various metabolic reactions of the body. Deficiency causes various disorders.

5) Water: It is the solvent for ~~all~~ ^{most of} the substrates in our body and ~~also~~ helps in elimination of metabolic waste and toxic substances. Water is very essential for survival deficiency of which causes many manifestations.

* principles and points to be considered while planning balanced diet:

1) All the nutrients should be in adequate quantities and required proportion. The minimum RDA of all the nutrients should be met.

2) Age, Sex, ~~gender~~, gender, physiological state (pregnancy and lactation), dietary habits, likes and dislikes of an individual, economic status, environment all these factors have to be considered.

* ~~planning a balanced diet~~

* ~~Dietary goals:-~~

1) ~~Main food :- cereals make up the major~~

- 3) The ratio of proteins, fats and Carbohydrates in a balanced diet should be 2:2:6. i.e., ~~prote~~ carbohydrates should ~~be~~ be the major source of energy (50-60%)

Dietary goals:

Main food: Cereals make up the major ~~part~~ part of main food and provide Carbohydrates. Pulses provide proteins etc and comes next to Cereals. ~~Milk~~ Milk
Non-vegetarians should take meat, eggs in sufficient quantities.

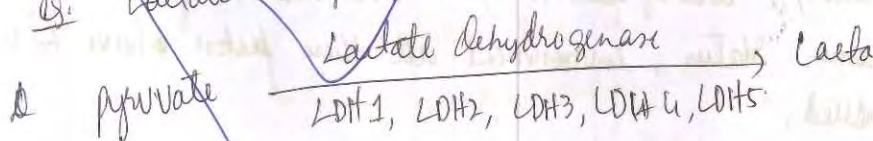
Milk: Minimum 100ml per day ~~is~~ required
300ml per day is recommended.

Junk food and alcohol: Junk foods should not be taken as they cause many diseases.

One type of Alcohol ~~is~~ per day is recommended for women and two per day is recommended for men.

- 6) Isoenzymes are the enzymes which ~~are~~ are the different forms of an enzyme and catalyze the same type of reaction. i.e. ~~act~~ act on same substrate and same product is formed.

eg: Lactate dehydrogenase has 5 isoenzymes.



Isoenzymes play a very important role in the diagnosis of various diseases.

Improvement Test

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PHARMACOLOGY IMPROVEMENT TEST

2. β -LACTAMASE INHIBITORS

• Drugs ~~name~~ Examples

- Clavulanic Acid - Sulbactam - Tazobactam

• Mechanism of Action

Combines with a β lactam antimicrobial drug

↓
Used as β lactamase inhibitor binds to β lactamase enzyme and inhibits it

↓
No degradation of β lactam antibiotic

↓
 β lactam antibiotic performs its action by inhibiting transpeptidation

↓
Inhibits cell wall synthesis

↓
Bacterial cell lysis

↓
Bactericidal effect

• Therapeutic Uses

- ~~Bacterial~~ ^{cont} Infections caused by bacteria containing β lactamase enzyme

→ Eg: Actinobacter, Citrobacter, Enterobacter species

25
30

2 1/2

3. MENTION SIX GENERAL PROPERTIES OF AMINOGLYCOSIDES

- Made of amino sugars linked by glycosidic bonds
- Water-soluble
- Cannot cross blood-brain barrier
- Polar
- Adverse Effects: Ototoxicity, Nephrotoxicity, Neuromuscular Blockage
- Bacteriostatic
- Inhibit protein synthesis by binding to 30s ribosomal subunit

4. NAME 3 THIRD GENERATION CEPHALOSPORINS. WRITE 3 USES.

Names: Ceftriaxone, Cefotaxime, Cefixime, Cefixime,
Cefditoren pivoxil

Uses:

- Skin infection
- Soft tissue infections
- Ear infections
- Eye infections
- Gonorrhea
- Meningitis

5. EXPLAIN WHY TETRACYCLINES ARE CONTRAINDICATED IN CHILDREN AND PREGNANCY

Children

Tetracycline has a ^{chelating} ~~depressing~~ property.

It forms tetracycline orthophosphate complex.

It gets deposited in bones and teeth (Teeth Enamel Dysplasia)
especially in children

Pregnancy

Tetracycline can cause hepatotoxicity, which can affect the fetus.

6. LIST 3 USES OF COTRIMOXAZOLE

- Urinary Tract Infection
- Respiratory Tract Infection
- Diarrhea caused by gram-ve bacilli

↳ E.g. Shigella, Salmonella, E. coli

3

- Meningitis
- Sexually Transmitted Diseases
- PID

7. ENUMERATE MACROLIDES. MENTION 2 ADVANTAGES OF AZITHROMYCIN OVER ERYTHROMYCIN.

Macrolides: Erythromycin, Azithromycin, Clarithromycin, Roxithromycin

2 1/2

2 Advantages of Azithromycin over Erythromycin:

- Azithromycin is ^{acid} stable and Erythromycin is acid labile
- Azithromycin is more readily absorbed in GIT than Erythromycin
- Azithromycin does not cause superinfection unlike Erythromycin

8. SUPERINFECTION

- Failure of the flora (natural bacteria residing in the body) in protecting the body from infection

2 1/2. This is caused by disturbance to the flora. This can be drug induced, and usually happens in the GIT.
E.g. Erythromycin, Ampicillin

9. MECHANISM OF ACTION OF FLUOROQUINOLONES

Fluoroquinolones

Inhibits DNA Gyrase
(Topoisomerase II).

Inhibits Topoisomerase IV

↓
Inhibits Removal of super coils
made when helicase
unwinds the DNA

↓
Inhibits coming apart of chromosomes/DNA
during cell division

↓
Bacteriostatic Effect

↓
Bactericidal Effect

10. MENTION 3 USES OF PENICILLIN G

- Skin Infections
- Urinary Tract Infections
- Diarrhea caused by gram -ve bacilli
- Meningitis
- Respiratory Tract Infections

1. ANTIMICROBIAL COMBINATION

• Used to produce a better effect

Eg: Sulfamethoxazole + Trimethoprim = Cotrimoxazole

β lactam Antibiotic + β lactamase Inhibitor = 70-100% β lactam resistant bacteria

Improvement Test

Christina Teresha
87
17MG483

⑩ 3 uses of Penicillin G

- (a) For Staphylococcal infections
- (b) Streptococcal infections
- (c) Meningococcal infections
- (d) Pneumococcal infections

2 1/2 ✓

19
30

⑨ Mechanism of action of Fluoroquinolones

Fluoroquinolones

Inhibit ~~DNA~~ DNA Gyrase

Prevent the correction of
positive supercoiling

Degradation of DNA

Bactericidal

Inhibit IV Topoisomerase

Prevent separation
of daughter strands

Damaging.

2 1/2 ✓

⑧ Superinfection

It is the development of a new disease because of the use of antibacterials / antimicrobials.

Mechanism

(Antibiotics) It acts on the normal flora / bacteria present in the body.

Role of normal nonpathogenic bacteria -

- (a) Attack pathogens
- (b) Compete for nutrients with pathogens

If they are destroyed, harmful pathogens increase.

⑦ Enumerate macrolides. Mention 2 advantages of azithromycin over erythromycin.

Macrolides :- Erythromycin, Clarithromycin, Azithromycin, Roxithromycin.

Azithromycin

- (a) It is acid stable
- (b) Better absorbed

(c) Acts against Mycobacterium Avium complex (MAC), H. influenzae and T. gondii

(d) Free of drug interactions

(e) Long acting; one dose per day.

(f) High plasma concentration.

⑥ 3 uses of Cotrimoxazole

① Urinary Tract infection

② Trachoma, Inclusion conjunctivitis, LGV

③ Toxoplasmosis

④ Melioidosis.

⑤ Why are tetracyclins contraindicated in pregnancy and children.

① Tetracyclines chelate calcium, so it is not preferred in children as it affects the growing bones.

② It can cause pseudotumor cerebri in infants when taken in pregnancy. bulging of anterior fontanelle.

④ Cephalosporins

Ceftriaxone

Ceftriaxone

Uses

- ① Gram positive infections like streptococci and staphylococci infections
- ② Gram negative infections due to E. coli etc
- ③ Pseudomonal infections

③ Aminoglycosides

① Polycationic carbohydrates attached to amino sugars

② Highly water soluble

③ Given parenterally

④ Stays in the extracellular space

⑤ Excreted from the kidneys unchanged

⑥ Works well in alkaline environment (low pH)

⑦ Acts on gram negative aerobes

⑧ Causes ototoxicity, nephrotoxicity

② β -lactamase inhibitors

Mechanism of action:-

These inhibit β lactamase, an enzyme produced by bacteria against the β -Lactam ring of certain antibiotics, [penicillins, cephalosporins, meropenams]

Eg. Clavulanic Acid.