

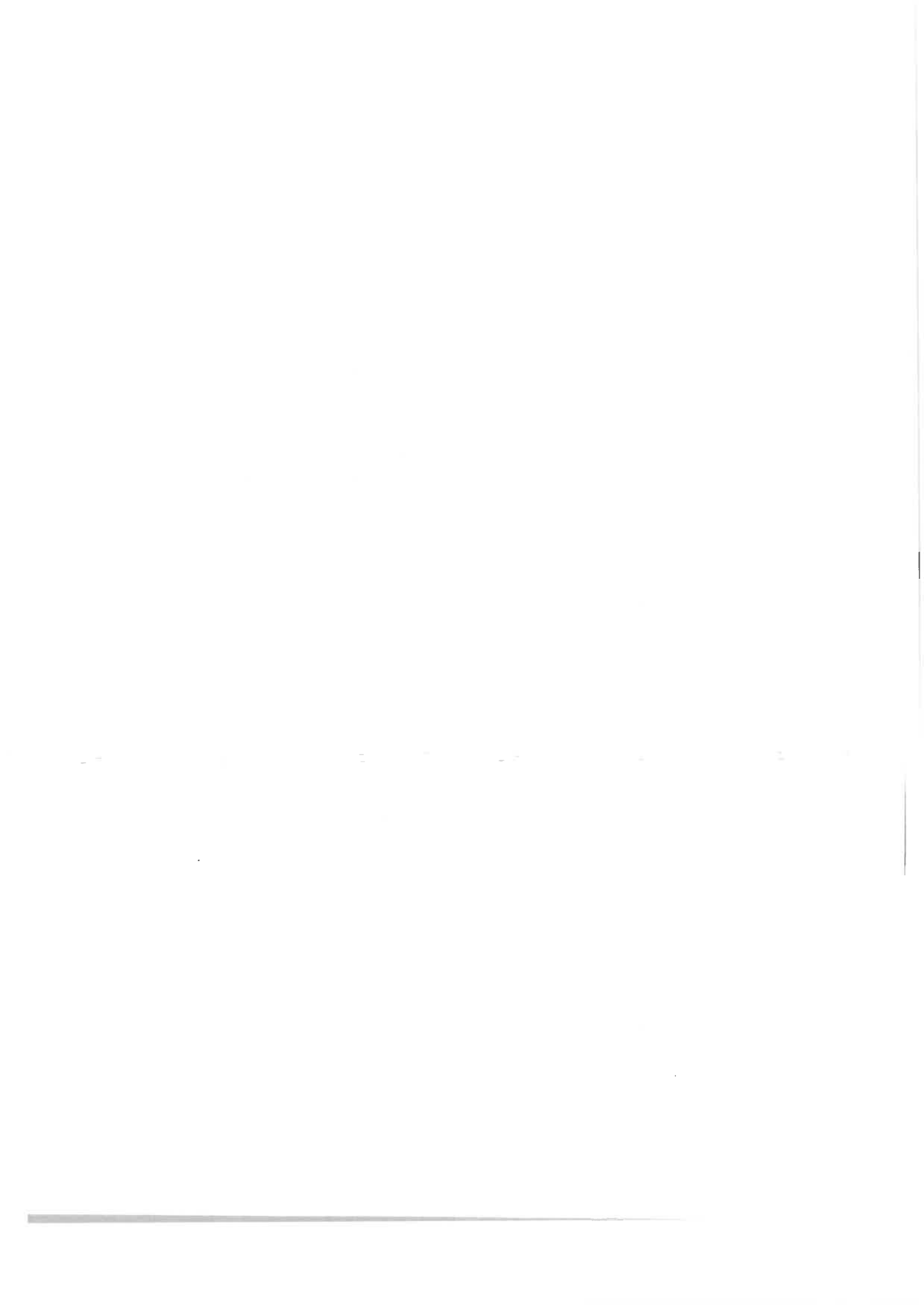
Forensic Medicine

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List of Topics LEAST IMPORTANT for FMGE Aspirants

- 1) Starvation
- 2) Impotency, Sterility
- 3) Abortion
- 4) Infanticide
- 5) Forensic Psychiatry
- 6) Stains
- 7) Sex Determination In Identification
- 8) Few Poisons Like Cadmium, Zinc, Iron, Silver, Spanish Fly, Spider, Plant Irritants Like Ricin, Calotropis, Ergot
- 9) Animal Vs Human Hair



Section 1

Legal Procedures

1.1

Chapter

LEGAL PROCEDURES PART -1

TOPICS

1. Introduction to Indian Legal system and recent changes in Indian laws
2. Indian Court System
3. Recording of Evidence in Court
4. Types of Evidence
5. Types of Witness
6. Conduct Money

INTRODUCTION TO INDIAN LEGAL SYSTEM AND RECENT CHANGES IN INDIAN LAWS:

All Indian laws are categorised into:

1. **IPC changed to BNS (Bhartiya Nyaya Sanhita).** A total of 358 sections.
2. **CrPC Changed to BNSS (Bhartiya Nagarik Suraksha Sanhita).** A total of 531 sections.
3. **IEA changed to BSA (Bhartiya Sakshya Adhinyam).**
4. **Specific Acts- e.g., MTP Act**

Important BNS

Category	BNS
1. Various Definition	2 BNS
2. Criminal Responsibility based on age, mental illness and intoxication	20 - 24 BNS
3. Consent	25 - 30 BNS
4. Sexual offences	63 - 79 BNS
5. Offences Related to marriage	80 - 87 BNS
6. Criminal Abortion	88-92 BNS
7. Offences against child	93 - 99 BNS
8. False Evidence	191-201
9. Offences affecting life (Murder, Suicide etc)	100 - 113 BNS

10. Hurt, grievous hurt etc.	114 - 125 BNS
Criminal force, assault etc	128 - 136 BNS
False evidence	227 - 246 BNS

2 BNS: Various Definitions

- Subsection 6 of 2 BNS: Death
- Subsection 14 of 2 BNS: Injury
- Subsection 17 of 2 BNS: Life

20 -24 BNS: Criminal Responsibility (based on age, mental illness and intoxication)

- 20 BNS: Child < 7 years, not responsible
- 21 BNS: 7-12 years, +/- responsibility, court decision
- 22 BNS: Criminal responsibility of Mentally ill (McNaughten's)
- 23 BNS: Involuntary intoxication
- 24 BNS: Voluntary intoxication

25 - 30 BNS: Consent

25 BNS: Act not intended and not known to likely to cause death or grievous hurt, done by consent.

26 BNS: Act not intended to cause death, done in good faith for person's benefit by consent (e.g. surgeon doing risky surgery with consent).

27 BNS: Act in good faith for a person <12 years of age, or mentally ill by consent of the guardian.

28 BNS: Consent under fear, misconception, < 12 year, mentally unsound, intoxication not valid

29 BNS: Consent for acts which are offence is not valid (e.g. criminal abortion)

30 BNS: Act done in good faith for benefit of a person "without consent" in emergency

63 - 79 BNS: Sexual Offences

- 63 BNS: Def. Of Rape
 - Minimum age of girl for consent for sex:



18 yrs

- **64 BNS:** Punishment for rape (10 years to Life)
- **65 BNS:** Punishment for Rape in certain cases
 - < 16 yrs of girl (20 years to Life)
 - < 12 yrs of girl (20 years to Death)
- **66 BNS:** Causing death/ vegetative state of victim while committing rape (20 yrs- Death)
- **67 BNS:** Sex by husband during separation (2-7yrs)
- **68 BNS:** Sex by person in authority (5-10 yrs)
- **69 BNS:** Sex by using deceitful means, e.g. false promise of marriage (upto 10 years)
- **70 BNS:** Gang rape
 - > 18 years (20yrs - life)
 - < 18 years (Life imprisonment- death)
- **71 BNS:** Repeat offender (Life imprisonment - death)
- **72 BNS:** Disclosure of identity of rape victim (upto 2 years)
- **73 BNS:** Publishing any matter related to court proceedings (upto 2 years)
- **74 BNS:** Sexual assault by criminal force (1-5 yrs)
- **75 BNS:** Sexual harassment
 - a) physical contact / request for sexual favours / showing pornography (upto 3 years)
 - b) Sexually coloured remarks (upto 1 year)
- **76 BNS:** Removal of clothes of woman (3-7 years)
- **77 BNS:** Voyeurism
 - 1st Offence (1-3 years)
 - 2nd Offence (3-7 years)
- **78 BNS:** Stalking
 - 1st Offence (upto 3 years)
 - 2nd Offence (upto 5 years)
- **79 BNS:** Word, gesture or act intended to insult modesty of woman. (upto 3 years)

80 - 87 BNS: Offences related to marriage

80 BNS: Dowry Death. It is death of women within 7 years of marriage (7 yrs to life)

85 BNS: Women subjected to cruelty by husband or in laws (upto 3 years)

88 - 92 BNS: Criminal Abortion

- 88 BNS:** Criminal abortion with mother's consent
- 89 BNS:** Abortion without mother's consent
- 90 BNS:** Death of mother due to abortion
- 91 BNS:** Act done with intent to prevent child being born alive or to cause to die after birth.
- 92 BNS:** Causing death of quick unborn child by act amounting to culpable homicide eg. Hitting abdomen

93 - 99 BNS: Offences against children

- 93 BNS:** Child <12 yrs abandoned by parents
- 94 BNS:** Newborn death concealment

100 - 113 BNS: Offences affecting Life (murder, suicide etc.)

- **100 BNS:** Def. Of Culpable homicide
- **101 BNS:** Def. Of Murder
- **103 BNS:** Punishment for Murder
- **105 BNS:** Punishment for Culpable homicide not amounting to murder
- **106 BNS:** Death due to negligence (Punishment up to 5 years; but for medical negligence up to 2 years)
- **107, 108 BNS:** Abetment of suicide
- **109 BNS:** Attempt to murder
- **110 BNS:** Attempt to culpable homicide

114-125 BNS: Hurt, Grievous Hurt

- **114 BNS:** Def. Of hurt
- **115 BNS:** "Voluntarily" causing hurt
- **116 BNS:** Def. Of grievous hurt
- **117 BNS:** "Voluntarily" causing grievous hurt
- **118 BNS:** Hurt or G. Hurt by "dangerous weapon"
- **122 BNS:** Hurt or G. Hurt on "Provocation"
- **123 BNS:** Hurt by "Poison"
- **124 BNS:** G. Hurt by Acid (Throwing or administering etc)

128 - 136 BNS: Criminal Force and Assault

129: Defines criminal force

130: Defines Assault (attempt or threat to use criminal force)

227 - 246 BNS: False Evidence

- **227 BNS:** Perjury definition (Giving false evidence)
- **228 BNS:** Fabricating false evidence

Legal Procedures Part -1

- **229 BNS:** Punishment for perjury (false evidence- upto 7 years)
- **234 BNS:** Issuing False certificates
- **238 BNS:** disappearance of evidence of offence
- **296 BNS:** Obscene acts (Exhibitionism)

Juvenile Justice (Care and Protection of Children) Act (2000, 2015, 2022) <18 years

- Max punishment up to 3 yrs.
- He cannot be sent to a routine jail
- Only sent to a rehabilitation home

Note: If any heinous crime (any crime whose punishment is >7yrs, e.g. murder, rape) and age is between 16 - 18 years, he can be given the same punishment as an adult

JUVENILE JUSTICE BOARD:

- One 1st-class judicial magistrate
- Two social workers:
 - At least one should be woman
 - Qualified and experience in health education or law, psychology or psychiatry etc.

Important BNSS

- **2 BNSS:** Various definitions (including Definitions of various types of offences, like bailable, cognizable, warrant case, summon case etc) offences
- **33 BNSS:** Crime information to police
- **51 BNSS:** Med Exam of arrested person for any offence (forceful examination allowed)
- **52 BNSS:** Med Exam of arrested person accused of rape (forceful examination allowed)
- **63 - 71 BNSS:** Summons
- **184 BNSS:** Medical examination of victim of rape
- **194 BNSS:** Police Inquest
- **196 BNSS:** Magistrate inquest

As a general rule -

- Most of the offences are Cognizable
- Non cognizable offences:
 - Simple hurt without dangerous weapon
 - Criminal abortion with consent of mother

2 BNSS: Important Def (Classification of Offences)					
Bail		Arrest		Trial Procedure	
Non Bailable	Bailable	Non-Cognizable	Cognizable	Summons case	Warrant case
Not the right of accused to get bail. The Court decides	Right of accused to get bail	Warrant required for arrest	Arrested without warrant	A case for a crime whose punishment >2years	A case for a crime whose punishment <2 years
More serious offence	Less serious offence	Less serious offences	More serious offences	Less serious offence	More serious offence

33 BNSS - Any serious offence (murder, rape, etc.) it is mandatory to inform the police / magistrate

52 BNSS- Medical examination of an arrested person can be done forcefully

63- 71 BNSS - Summons (Subpoena - Legal document)

- If two summons received on same date, then attendance should be on the basis of ranking of the court:

1. Higher > Lower courts
2. Criminal > Civil courts
3. Summon received first

- Higher + Civil Vs Lower + Criminal?
 - Attend higher court - Ranking of the court is most important

Types of summons:

- a. Subpoena ad testificandum: witness to testify orally
- b. Subpoena duces tecum- witness to bring a document

INQUEST

- Legal enquiry into the cause of death

• **Types:**

Police Inquest	Magistrate Inquest	Coroners	Medical examiner system
194 BNSS	196 BNSS	Not done in India	not done now
Most common	In few conditions	done in UK	done in USA
Minimum rank who can conduct - head constable	Done in 3 Conditions : 1. Dowry death (death within 7 years of marriage, and death was unnatural and related to dowry)- 304B IPC- Executive magistrate 2. Exhumation - digging out of buried bodies. Executive magistrate 3. Custodial death (custody of state. E.g., police custody, jail, rehabilitation, psychiatric hospital). Judicial magistrate	judicial officers	By doctor, considered BEST

Investigating officer-the power to summon someone in regards to inquest

EXECUTIVE MAGISTRATE	JUDICIAL MAGISTRATE
<ul style="list-style-type: none"> • Administrative magistrate • Does not sit in court or give punishments • Higher rank govt. officials (sub div magistrate, tehsildars, collector , Dist. magistrate 	<ul style="list-style-type: none"> • True magistrate • Sit in court give punishments

INQUEST PROCEDURE:

1. Police officer, gives intimation to nearest Executive Magistrate
2. Holds inquiry in presence of two or more panchas (respected local people).
3. Panchama prepared
 - 4a. No suspicion: Body handed over to relatives
 - 4b. Suspicion: Body sent for PM to Doctor with a requisition and inquest papers. Doctor hands over the body to investigating officer
6. Report forwarded to Executive Magistrate

1.2

Chapter

LEGAL PROCEDURES PART -2

1. DYING DECLARATION ACT

	Dying Declaration	Dying Deposition
India	followed	Not followed
<ul style="list-style-type: none"> Oath Accused/lawyer Cross Examination Leading Question 	No	Yes
Recorded by	Anyone can record, but Preferably by magistrate	Magistrate only
Type of evidence (Documentary / Oral)	Documentary	Oral , more valuable / credible
If victim survives	Little corroborative value or no value Has to give oral evidence in court	Full value

2. TYPES OF WITNESS

3 types of witness:

Expert witness	Common witness	Hostile witness
<ul style="list-style-type: none"> Opinion based on technical expertise Answers the question asked in addition to volunteering to give a statement so that interpretation goes in right direction Doctor 	<ul style="list-style-type: none"> Facts that he observed Answers only the question asked 	<ul style="list-style-type: none"> False testimony or hides the truth or changes statement Expert or common witness

3. Onus to proof

- Responsibility to prove Lies with
 - Victim - onus to proof lies with victim usually
 - Accused - rarely onus to proof lies with accused

- Exception where onus to proof lies with the accused: -
 - Rape
 - Res Ipsa loquitor
- Contributory negligence
- Onus to proof - Civil Vs Criminal case

Civil case	Criminal case
<ul style="list-style-type: none"> • Patient (complainant/ plaintiff) Vs Doctor (defendant) • Onus to proof lies with Patient 	<ul style="list-style-type: none"> • State (govt lawyer / public prosecutor) Vs Doctor (defence lawyer) • Onus to proof lies with State

4. Leading questions

- Ans can be given in Yes/ No
- E.g., Has Suresh killed Madan? - is a leading question
 - Who killed Madan? - It is not a leading question

Leading Questions

- When leading conditions can be asked
 1. Dying deposition
 2. Cross examination
- When leading questions cannot be asked
 1. Dying declaration
 2. Examination in chief (except- if witness becomes hostile)
 3. Re - examination

TYPES OF EVIDENCE

ORAL EVIDENCE	DOCUMENTARY EVIDENCE
Oral only as well as document, both are considered oral evidence	Only Document, no witness in court
More valuable	Less valuable
Cross examination allowed	Cross examination not possible
Mostly oral evidence required Medical doctor evidence always has to be oral	Allowed in few exceptional situations <ol style="list-style-type: none"> 1. Dying declaration 2. Author of a book 3. Forensic scientist report 4. Chemical examiner report

INDIAN COURT SYSTEM

Court	Imprisonment	Death Penalty	Fine
Supreme and High Court	Any	Death	Any
Sessions / District / Additional sessions/ Additional District judge	Any	Yes but to be confirmed by high court	Any
Assistant session judge	Upto 10 yrs	No	Any
Chief judicial magistrate / chief MM	Upto 7 years	No	Any
1st class JM / MM	Upto 3 yrs	No	10,000 Rs
2nd class MM	1 year	No	5000 Rs

Appellate Vs Trial Courts

1. **Supreme court and High Court:** Mainly appellate court >> trial court
2. **Sessions court, Assistant session court/ CJM:** Mainly trial court >> appellate court
3. **First class judicial magistrate / 2nd class judicial magistrate :** Only trial courts, no appellate courts

RECORDING EVIDENCE IN COURT

1. **Oath** (except Person <12yrs, oath not required)
 - Religious- Religious book (Bhagvat Gita, Quran)
 - Atheist - "I solemnly affirm whatever I say will be the truth"
2. **Examination in chief/ Direct examination**
 - By lawyer who summoned the witness.
 - Mostly public prosecutor.
 - Only facts stated, leading questions not allowed.
3. **Cross examination/ Indirect Examination**
 - By lawyer of opposite party.
 - Mostly the defence lawyer.
 - Leading questions allowed.
 - No time limit

4. Re-examination/Re-Direct Examination

- By lawyer who summoned witness.
- If something was missed in examination in chief, that is asked in re-examination.
- Leading questions not allowed.

5. Questions by judge / court questions - can be done any time

- Q. Time limit for cross examination- no time limit
- Q. When can Judge ask questions- at any point
- Q. What are court questions- questions by judge

CONDUCT MONEY

- Money given to witness for his travel expenses, food in case of civil cases only

Q. Who decides the amount- Judge

Q. Who gives it - Plaintiff (who summons the witness)

Q. When given- At the time of serving the summon

Money to witness

Civil case	Criminal case
Always given and is called Conduct money	May or may not be given, and is not called conduct money
Money given at time of serving	Money given afterwards if at all given
Given by Plaintiff	Given by govt. or court

Section 2

Medical Law & Ethics

2.1

Chapter

MEDICAL LAWS & ETHICS

PART -1

BASIC FORENSIC TERMINOLOGIES

Forensic Medicine - medical aspects of law/ use of medical knowledge to help in administration of justice.
Eg. Doctor doing autopsy

Medical Jurisprudence -Legal aspect of medicine E.g. punishment for medical negligence (304 A IPC)

Medical ethics - moral principles used guide the behavior of a doctor with another doctor, patient and society . This is mandatory. If not followed then can be punished for Infamous Conduct (Professional misconduct). E.g. doctor should not take commission for referrals

Medical etiquettes- the conventional laws of courtesy which guide the behavior of one doctor towards another doctor. This is not mandatory but good if followed. This is not punishable. e.g., Doctor should not be charging fees from another doctor.

INFAMOUS CONDUCT Vs MEDICAL NEGLIGENCE

INFAMOUS CONDUCT	MEDICAL NEGLIGENCE
<ul style="list-style-type: none"> Also called professional misconduct. 	
<ul style="list-style-type: none"> Def- Any disgraceful act with respect to profession by a doctor. 	<ul style="list-style-type: none"> Def- Lack of reasonable care / skill leading to death / injury of the patient
<ul style="list-style-type: none"> Eg , Doctor performs surgery under the influence of alcohol (irrespective of whether the surgery was successful or not) 	<ul style="list-style-type: none"> E.g. Doctor performed surgery under the influence of alcohol and injury had occurred.
<ul style="list-style-type: none"> Punishment given by SMC 	<ul style="list-style-type: none"> Punishment given by - civil court (mild harm) and criminal court (severe harm)

<ul style="list-style-type: none"> Punishment - warning notice, professional death sentence (penal erasure)-this can be permanent or temporary. 	<ul style="list-style-type: none"> Punishment - fine, imprisonment
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TYPES OF MEDICAL NEGLIGENCE

Civil	Criminal
This is a mild negligence	Gross negligence
Mild harm	Severe harm / death
Goes to civil court	Goes to the criminal court .
Punishment : fine	Punishment: fine / imprisonment
	106 BNS (Earlier 304 A IPC): any death due to rash/ negligent act. in general, the punishment is upto 5 years, but for medical negligence, the punishment is upto 2 yrs

Dichotomy - fee splitting

Covering - helping a quack

Penal erasure -

- Professional death sentence is given for infamous conduct
- Patient reports to SMC
- The doctor can appeal to central health ministry and final decision is taken by the national medical commission.

MEDICAL RECORDS

1. Duration of retention of records

- Digital copy - 10 years to indefinitely
- Hard copy



- OPD patients : 3 year
 - Indoor patients :3 years
 - MLC- 10 years or till disposal
2. Time to provide records - 3 days
 3. What if records not maintained - punished for infamous conduct

DEFENCES AGAINST MEDICAL NEGLIGENCE

1. No duty owed to patient

Eg. A patient with cardiac problems goes to a nephrologist, then nephrologist can deny to see the patient. Here the doctor cannot be punished. Exception: in Emergency

2. Duty discharged as per standards

E.g. in case of burns the doctor gives antibiotics , fluids, treatment, NSAIDS. Still the patient dies. Here the doctor cannot be charged because the duty was discharged as per standard treatment.

3. Therapeutic misadventure (medical maloccurrence)

It is just a medical misadventure, where no one is at fault, could not have been prevented .

4. Res indicata - Limitation period of 2 years in case of civil case

5. Error of judgement - Wrong diagnosis of diseases with atypical presentation.

6. **Res Judicata** (Doctrine of double jeopardy)- once a case is decided in the court, it cannot be taken up again as a fresh case. Only appeal can be done to higher court.

7. **Volenti nonfit injuria**- to a willing person, no harm is done, e.g. Patient with severe heart disease requires a surgery for appendicitis, the doctor informs the patient it's a high risk patient. The patient agrees because if not treated for appendicitis, then also he might die. Here the doctor is not at fault.

8. **Contributory negligence** - both patient and doctor are at fault.

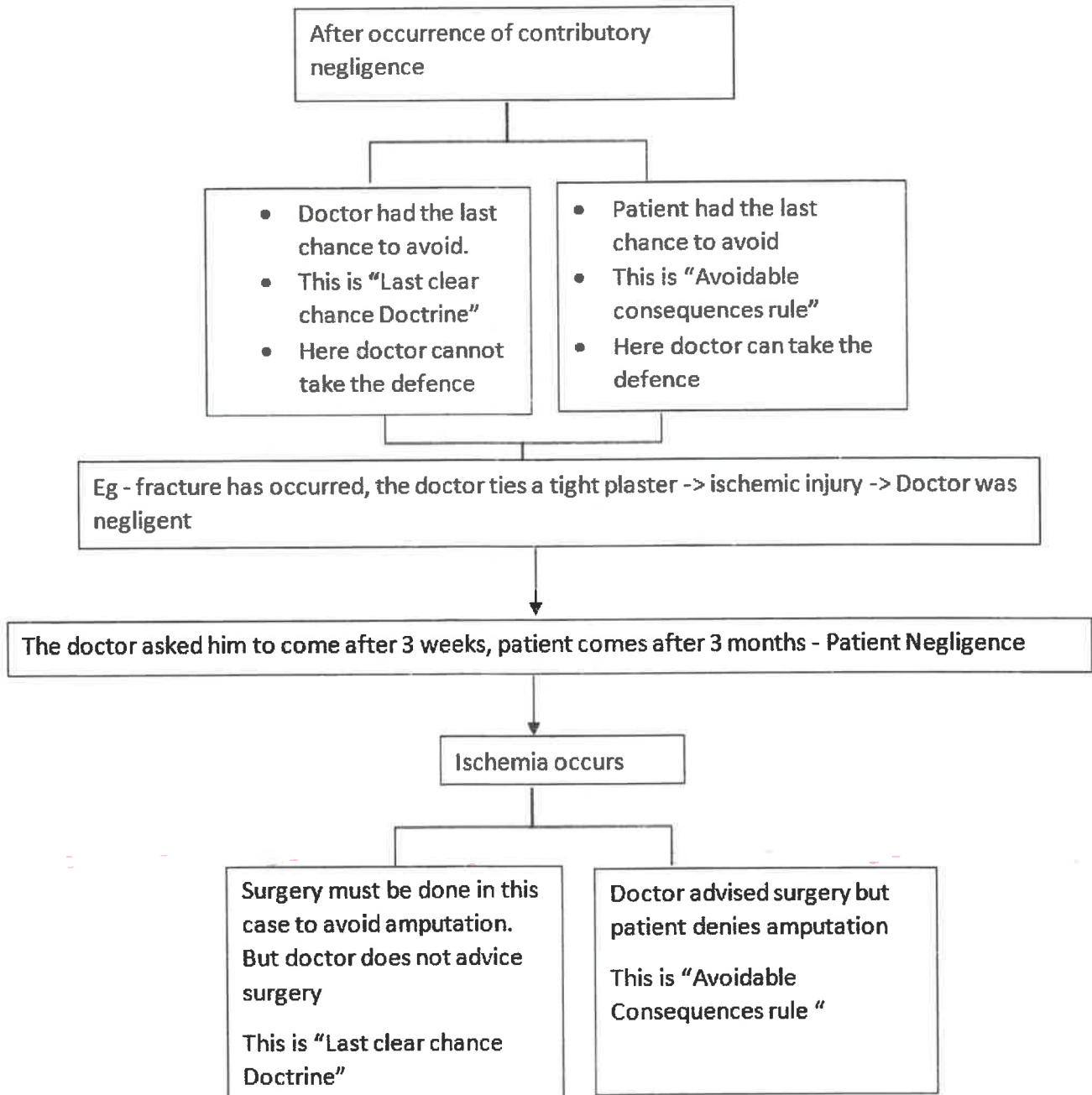
E.g. Patient comes with knee pain and he is advised to take 1000mg PCM every 4 hourly for 3 weeks. Here the doctor is negligent for giving such high dose. The patient instead of taking for 3 weeks takes it for 3 months - here both the doctor and patient are negligent.

Here 2 things can occur:

1. Mild injury - civil case, contributory negligence is a defence here. Onus to proof lies with the doctor
2. Major injury - criminal case. It is not a defence here.

Two Doctrines related to contributory negligence -

- a. "Last clear chance Doctrine"
- b. "Avoidable consequences rule"



2.2

Chapter

MEDICAL LAWS & ETHICS

PART -2

CONSENT

IMPLIED	EXPRESSED	
	Oral	Written
E.g. Inspection, palpation, percussion and auscultation	E.g. blood samples, minor procedures	e.g. major diagnostic procedures, GA, Open

On the basis of how much information provided :

BLANKET CONSENT	INFORMED CONSENT
<ul style="list-style-type: none"> • Very little information • Not valid 	<ul style="list-style-type: none"> • Full information • Valid consent

Age of consent:

- <12 years - cannot give consent, consent given by parents/guardian

12 years	18 years
<ul style="list-style-type: none"> • General physical examination • Examination of sexual assault victim 	<ul style="list-style-type: none"> • All surgeries, anaesthesia, organ transplantation, consent for sexual intercourse by a girl.

- Consent in Emergency** - life threatening emergency, if no one is available then no consent required, 92 IPC
- 53 CrPC** - Consent of Accused not required
- Consent of spouse for:**
 - Any operation- not required
 - Contraceptive sterilization and artificial insemination- consent of husband required
 - Abortion- not required
- Consent for Autopsy:**
 - Pathological autopsy-consent of relatives re-

quired

- Medico-legal autopsy-consent of relatives not required
- Examination of patient without consent amounts to Assault

COMMON MEDICO LEGAL DOCTRINES:

- Doctrine of full disclosure** - Doctor has to inform the patient about the condition, risks associated and the treatment plan
- Doctrine of professional secrecy**- The doctor should not reveal information to others about the condition of the patient. Doctor to keep information of a patient secret
- Therapeutic privilege** - exception to doctrine of full disclosure. In certain conditions doctor can hide certain conditions from patient. e.g. if a patient can undergo a psychological breakdown after getting the news, the doctor can share the information with the relatives.
- Privileged communication** - exception to professional secrecy. Here doctor can reveal secrets of the patient to a concerned person or authority for some valid reason (interest of patient, interest of self, court, communicable diseases, patient suffering from STDs, to employer only in valid conditions)
- Doctrine of informed refusal.** - after the doctor has shared all the information with the patient and then the patient refuses the treatment.
- Corporate negligence** - hospital at fault
- Doctrine of product liability**- manufacturer at fault
- Vicarious liability** - liability for the act of another. E.g., employer responsible for the act of employee (Master servant Doctrine), senior responsible for act of junior (Respondeat Superior). Here, negligent - only 1 (employee/ junior), but punishment/ liability - both.

- 9. **Novus actus interveniens** - new action intervening. A person is responsible not only for direct action but also for logical consequences of his action, unless a new action intervenes.
E.g., A stabs B → perforation occurs → surgery done, but still sepsis occurs and patient dies. A will still be responsible for death of B
- 10. **Res Ipsa Loquitur**- Facts speak for themselves. Very obvious negligence, no expert knowledge required to prove. Also called Common knowledge doctrine. E.g., Doctor leaving scissor in abdominal cavity after surgery. Onus to proof lies in the hands of doctor.

EUTHANASIA- Mercy killing

Types -

- 1. Doctor plays the major role
 - a. Act of omission or commission

Active	Passive
<ul style="list-style-type: none"> • Giving lethal injection to kill • e.g., Giving morphine, insulin 	<ul style="list-style-type: none"> • Withdrawing the life support system • E.g. Do not resuscitate

b. Consent of patient

Voluntary	Non-Voluntary	Involuntary
Patient gave consent	Consent not possible E.g., Comatose	Consent possible but not taken As good as murder.

Only passive euthanasia allowed in terminal illness with permission of high court in India.

- 2. **Physician assisted suicide** - Doctor only helps and patient kills himself

NMC AND RELATED REGULATIONS:

- 1. **MEDICAL COUNCIL OF INDIA** was governed by IMC ACT 1956.
- 2. **NATIONAL MEDICAL COMMISSION** (has replaced MCI) is governed by NMC Act 2019-20

Schedules of NMC Act for Qualification

- I. Medical qualifications granted in India and recognized by NMC
- II. Medical qualifications granted in Foreign and approved by NMC
- III. It has two subparts:
 - IIIA: Medical qualifications granted in India and recognized by NMC, but not described in schedule I
 - IIIB: Medical qualifications granted in Foreign and recognized by NMC, but not described in schedule II

RED CROSS EMBLEM: used by

- 1. Armed Forces medical personnels
- 2. International Red Cross Organizations

Declaration	Purpose
1. Declaration Of Hawaii	Mentally Ill
2. Dec. of Helsinki	Human Experimentation
3. Dec. Malta	Hunger Strikes
4. Dec. of Oslo	Therapeutic Abortion
5. Dec. of Ottawa	Child Health
6. Dec. of Venice	Terminal Illness
7. Dec. Lisbon	Right Of Patients
8. Dec. of Hongkong	Elderly Abuse
9. Dec. of Sydney	Death
10. Dec. Tokyo	Torture
11. A) Dec. of Geneva B) Hippocratic Oath C) International Code of Medical Ethics	Medical ethics

Section 3

Identification

3.1

Chapter

IDENTIFICATION PART - I

RACE

Cephalic index	$\frac{\text{Max breadth of skull}}{\text{Max length of skull}} \times 100$
Brachial index	$\frac{\text{Length of radius}}{\text{Length of humerus}} \times 100$
Crural index	$\frac{\text{Length of tibia}}{\text{Length of femur}} \times 100$
Humero-femoral index	$\frac{\text{Length of humerus}}{\text{Length of femur}} \times 100$
Intermembral index	$\frac{\text{Radius + humerus}}{\text{Tibia + femur}} \times 100$

CEPHALIC INDEX (CI)

	Value	Found in
Dolichocephalic (long headed)	70 - 75	Aryans , Negroes, Aborigenes
Mesaticephalic (medium headed)	75 - 80	Europeans (whites/ Caucasians) Chinese Indians
Brachycephalic (short headed)	80- 85	Mongoloids

AGE ESTIMATION:

1. Dentition

- Eruption and falling of teeth
- Gustafson's method - age related changes
- Miscellaneous - stacks method, boyde's method

2. Age of eruption of temporary teeth

- Always central incisor erupts earlier than lateral
- Always lower teeth > upper teeth
- Exception lateral incisor (upper > lower)

1. Incisor :

- Central
 - Lower - 5-6 months
 - Upper - 6-7 months
- Lateral
 - Upper - 7-8 months
 - Lower- 8-9 months

2. Molar - 12 -14 months

3. Canine - 17 - 18 months

4. 2nd molar - 24 - 30 months

3. Age of eruption of permanent teeth

- 1st molar - 6-7 yrs
- Central incisor - 7-8 yrs
- Lateral incisor - 8-9 yrs
- 1st premolar - 9- 10 yrs
- 2nd premolar - 10 - 11 yrs
- Canine - 11- 12 yrs
- 2nd molar - 12- 14 yrs
- 3rd molar - 17- 25 yrs

4. Position of teeth in oral cavity

1. Temporary

2	1	2	X 4 = 20
I	C	M	

2. Permanent