

**1. During autopsy, if spinal cord is to be examined what is the most commonly used approach:**

a) Anterior

b) Posterior

c) Lateral

d) Antero-lateral

Correct Answer - B

Posterior *Ref: Reddy Forensic 29/e p108*

*"An incision is made on the back in midline extending from the occipital protuberance to the lower end of sacrum"-Reddy*

## 2. In civil negligence, onus of proof lies on

a) Judicial first degree magistrate

b) Police not below the level of sub inspector

c) Doctor

d) Patient

Correct Answer - D  
Patient

- "Generally speaking, it is for the patient in an action for negligence to establish the guilt of the doctor, whose innocence is otherwise assumed."- Parikh
- However, in cases where the rule of *res ipso loquitur* is applied, the patient need not prove negligence. *Res ipso loquitur* means that "the thing or fact speaks for itself." The patient has to merely state what according to him was the act of negligence.

### **Civil negligence**

- When a patient (or his relative, in case of patient's death) files suit in a civil court to get compensation from his doctor for the injury or death of the patient due to doctor's negligence.
- A doctor files civil suit to get fees from his patient, who refuses to pay alleging negligence.

### **Note that?**

- Even if a doctor is negligent, a patient is not entitled for any compensation if no damage has occurred.
- An error in diagnosis or treatment is not negligence provided proper care and skill has been exercised.
- Contributory negligence is not a defence in criminal negligence. (*Contributory negligence is any negligence on the part of the patient or his attendant, which along with the doctor's*

*negligence, contributed to the injury)*

- Criminal negligence cases are dealt under I.P.C. section 304A.

### 3. Condition promoting adipocere formation

a) Dry and hot

b) Hot and humid

c) Dry & optimum

d) cold and moist

Correct Answer - B

Hot and humid [Ref: Reddy forensic 29/e p154; Parikh 6/e p3..30]

*"Adipocere is delayed by cold and hastened by heat. A warm, moist, anaerobic environment favors adipocere formation."*- Reddy

- Adipocere is a modification of the process of putrefaction. Here the fatty tissues of the body change into a substance known as adipocere. (*Adipocere derives its name from its properties which are intermediate between those of fat and wax; adipos - soft; cera - wax*).
- It is seen most commonly in bodies immersed in water or in damp, warm environment with relative lack of air.
- It results due to hydrolysis and hydrogenation of unsaturated liquid fats (oleic acid) to saturated solid fats (hydroxystearic acid and oxostearic acid) which combine with calcium and ammonium ions to form insoluble soaps, which being acidic, inhibit putrefactive bacteria.
- This process starts under the influence of intrinsic lipases, and is continued by the bacterial enzymes of the clostridia group, mainly *Cl. perfringes*. These bacteria produce lecithinase, which facilitate hydrolysis and hydrogenation.
- Water is essential for the bacterial and enzymatic process of adipocere formation.
- A warm moist anaerobic conditions favour adipocere formation.

- Adipocere formation is more frequent in females, well nourished mature newborns, and obese persons. *Fetuses under seven months do not show adipocere formation.*
  - Adipocere formation forms in any body part where fatty tissue is present. It is usually formed first in the subcutaneous tissues of cheeks, breasts, buttocks, and abdomen. The limbs, chest wall, or other parts of the body may also be affected. Sometimes in infants and obese individuals the whole body is converted in adipocere formation.
  - Time required for adipocere formation:
    - varies greatly
    - usually takes 3 to 6 weeks for an adult limb and about 12 months for the whole body to be converted in adipocere. (Ref: Parikh)
    - Reddy differs: According to it it takes 3 to 6 months for an adult limb to adipocere formation.
    - In warm climate the shortest time is about 3 weeks (Ref: Parikh, Reddy)
  - Medicolegal importance:
    - Identification: when adipocere develops in the face, the facial features are preserved, helping in the identification.
    - Cause of death can be determined as injuries can be recognized.
    - Time since death can be estimated.
- Also know
- Mummification
- Mummification is also a modification of putrefaction. The conditions required for mummification are almost the opposite of those required for adipocere formation: *a high atmospheric temperature devoid of moisture with a free circulation of air around the body.*
  - Mummification is characterized by dehydration and desiccation of the body tissues and viscera.
  - Mummification process is favoured by chronic arsenic or antimony poisoning.

#### 4. According to MCI act, medical education granted by Indian universities comes under

a) Schedule I of MCI act

b) Schedule II of MCI act Part I of schedule III

c) Part I of schedule III

d) Part II of schedule III

Correct Answer - A

Schedule I of MCI act [Ref: Reddy 29/c, p20; Moth 23/e, Appendix 8, p596-597]

The Indian Medical Council Act 1956:

- The First Schedule of the act contains the recognized medical qualifications granted by universities in India.
- The Second Schedule contains the recognised medical qualification granted outside India
- Third schedule has two parts:
- Part I contains those medical qualification granted by medical institution not included in the first schedule.
- Part II contains those granted outside India, but not included in the second schedule.
- Part I of the third schedule also contains recognised medical qualifications granted to a citizen of India before 15111 Aug 1947 by medical institutions in the territories now forming Pakistan and before 1<sup>st</sup> April 1937 by medical institution in the territories now forming part of Burma.

## 5. The following statement about DDT is false:

a) Pyrethrum has synergistic action

b) It is a contact poison

c) Immediately kills the prey

d) Residual effect lasts for 18 months

Correct Answer - C

Immediately kills the prey [Ref: Park 20/e, p 687 (19/e p637)] Repeat from Nov 08 DDT does not immediately kill the insects. It takes several hours to kill them.

DDT (dichlorodiphenyltrichloroethane)

- DDT is an organochlorine, highly hydrophobic, nearly insoluble in water but has a good solubility in most organic solvents, fats, and oils.
- Commercial DDT is actually a mixture of several closely related compounds. The major component (70-80 %) is a para-para (p,p) isomer. The o,p' isomer is also present in significant amounts (15%). Dichlorodiphenyldichloroethylene (DDE) and dichlorodiphenyldichloroethane (DDD) make up the balance. The term "total DDT" is often used to refer to the sum of all DDT related compounds (p, p-DDT, o, p-DDT, DDE, and DDD) in a sample.
- It is primarily a contact poison. It acts on the nervous system of insects and causes paralysis. It dissolves into the waxy covering of the feet and causes paralysis of the feet and wings and finally death. It does not cause immediate death but takes several hours to kill. The residual action of DDT may last as long as 18 months depending upon the treated surface. Mud walls however by absorption cause decreased duration of action.

- DDT has no repellent action on insects.
- Pyrethrum and DDT have synergistic action; hence most sprays contain a combination of them.

**6.** Which one of the following is related with 'Mc Naughten'?

a) An accused

b) A witness

c) Private Secretary to PM

d) Prime Minister

**Correct Answer - A**

Daniel Mc Naughten, a 29 year old Scotsman, suffering from paranoid schizophrenia. He was accused for plotting murder plans against Tories Prime Minister, Sir Robert Peel.

**Mc Naughten Rule (the right or wrong test; the legal test):**

It is included in Sec. 84, I.P.C. which is follows: "Nothing is an offence which is done by a person, who at the time of doing it, by reason of unsoundness of mind, is capable of knowing the nature of the act, or that he is doing what is either wrong or contrary to the law."

**Ref:** The Essentials of Forensic Medicine and Toxicology by K S Narayan Reddy, 27th edition, Page 423.

7. In case of shot by bullet from a revolver, the presence of singeing of hair and charring of skin indicated a distance of:

a) 150 cm

b) 6 cm

c) 15 cm

d) 130 cm

**Correct Answer - B**

**Close shot** is applied when the victim is within the range of flame, i.e., 5-8 cm.

The entrance wound is circular with inverted edges, but the rebounding gases may level up or even evert the margins.

The skin is burnt with singeing of the hair.

***The skin surrounding the skin is hyperaemic and shows some bruising, burning, blackening and tattooing.***

If the discharge occurs at the distance of about 15 cm., the lacerating and burning effects of gases are usually lost due to the dispersion cooling of the gases before they reach the skin.

**Ref:** The Essentials of Forensic Medicine and Toxicology by KS Narayan Reddy, 27th edition, Page 195-196.

**8. A middle aged man from West Bengal presents with paraesthesia of hands and feet, hyperkeratosis of palms, lines on his nails and rain drop pigmentation. The most likely causative toxin for the above mentioned presentation is:**

a) Lead

b) Arsenic

c) Thallium

d) Mercury

Correct Answer - B

Paraesthesia of hands and feet, hyperkeratosis of palms, lines on nails and rain drop pigmentation is characteristic of arsenic poisoning.

Ref: The Essentials of Forensic Medicine and Toxicology By Dr K S Narayan Reddy, 27th Edition, Pages 473-75; Environmental and Chemical Toxins and Psychiatric Illness By James S Brown, Page 117; Parikh's Textbook of Medical Jurisprudence and Toxicology, 6th Edition, Pages 9.8-9.12

**9. A case of murder with gunshot is reported. A metal bullet is recovered from the body. Primary and Secondary markings on a metal bullet can be used for**

a) Identification of weapon

b) To know the range of firing

c) Severity of tissue damage

d) To know time of crime

Correct Answer - A

**Ans: A i.e. Identification of weapon**

Primary markings (class characteristics) and secondary markings (*metallic fouling, individual or accidental characteristics*) on a bullet can be *used for identification of weapon*Q.

Bullet is picked up with handsQ. Gunshot residue on hands can be detected by Dermal nitrate testQ.

**10. Palatoprints for identification of the person is performed by taking prints from which area of the hard plate**

a) Lateral

b) Anterior

c) Middle

d) Posterior

Correct Answer - B

B i.e. Anterior

Superimposition technique determines *whether the skull is that of a person in photograph or not*

Palatoprints for identification of persons is performed by *taking prints from anterior part of hard palate* Cheiloscopy is *utilization of lip prints as a means of personal identification*

**11. Stack formula is for age estimation from dental pattern in:**

a) Infants

b) Adults

c) 25-50 years age group

d) Above 50

Correct Answer - A  
A i.e. Infants

## 12. Giving false evidence under oath is defined under section:

a) 151 IPC

b) 161 IPC

c) 181 IPC

d) 193 IPC

Correct Answer - D

D i.e. 193 IPC

Sec IPC 193 defines punishment for fabricating false evidence.

It is divided into two parts, first one lays down punishment for intentional giving of false evidence in a judicial proceeding or fabricating false evidence for the purpose of its being used in a judicial proceeding.

The second one prescribes the punishment for intentionally giving false evidence or fabricating false evidence in any case other than a judicial proceeding.

- **Sec 191 IPC** Defines what amounts to giving false evidence by a person who is under legal obligation to speak the truth.
- **Sec 192 IPC** Defines the offence of fabricating false evidence.
- **Sec 197 IPC** Makes issuing or signing false certificates punishable.

**Ref:** Textbook on the Indian Penal Code By Krishna Deo Gaur 4th edn page 332.

**13. An alcoholic patient is brought for medical examination for alleged assault of his neighbor. ON examination, abnormal behaviour with irrelevant talk is noted. He has history of abstaining from alcohol for past 4 days and is diagnosed to be a case of delirium tremens. What is true according to the Indian Penal Code**

a) He is riminalaly responsible for his act

b) He is partially responsible for his act

c) Have diminished responsibility of his act

d) Not responsible for his act under section 84, IPC

Correct Answer - D

D i.e. Not responsible for his act under section 84, IPC

Mc Naughten Rules are framed for the *criminal responsibility of the insane*. And it states that *an accused person is not legally responsible for crime if he/she is not of a sound mind*. It is accepted in India as law of criminal responsibility in section 84 IPC.

In Mc Naughten rule, *insanity is a legal (not psychiatric) concept and it judges delusion as if real*.

Drunkenness (intoxication) is never an excuse against criminal responsibility unless it becomes a disease (such as alcohol paranoia, delirium tremens). And then an act done by a person of unsound mind, who is incapable of knowing the nature of the act due to intoxication is not an offence (section 84 IPC)



## 14. According to the transplantation of Human organs act 1994, what is the punishment for a doctor found guilty

a) Less than 1 year

b) Less than 2 year

c) 2 to 5 years

d) More than 5 years

Correct Answer - C

C ie 2-5 years

If a doctor is found guilty for unauthorized removal of human organ, or for commercial dealings etc, he can be punished with imprisonment up to 5 years and fine of 10000 Rs and removal of name from register of state medical council for 2 year for first offence and permanently for subsequent offence (according to the transplantation of human organs act 1994). But a/t 2011 Amendment the punishment has become imprisonment upto 10 years with fine extending upto 20 lakh Rs and removal of name from register of state medical council for a period of 3 years for first offence and permanently for subsequent offence.

**15. One of the following is a sure sign of rape**

:

a) Ruptured hymen in a girl aged 20 years

b) Presence of semen in the posterior fornix in a girl age 20 years

c) Presence of semen in the posterior fornix in a girl age 14 Years

d) Presence of semen in the posterior fornix in a married girl age 16 years

Correct Answer - C

Ans: C. Presence of semen in the posterior fornix in a girl age 14 Years

## 16. For DNA testing, which tissue sample is taken in an autopsy

a) Liver

b) Spleen

c) Kidney

d) Brain

Correct Answer - B

B i.e. Spleen

DNA can be extracted from any body fluid or tissue in which nucleated cells are present. The samples for DNA testing in forensic practice are usually taken from 1) Blood stains, 2) Semen, 3) Hair, 4) tissues such as *bone marrow, spleen, muscle, finger nail scrapings*, 5) Mouth swabs, 6) Saliva stains, and 7) Chorionic villus and muscle samples in foetus. Deep muscles, cardiac muscle, bones (preferably long bones with more bone marrow) &, teeth (preferably molar) are resistant samples and can be used in burnt & decomposed bodies. Blood and spleen are easily obtainable samples.

## 17. 'Fracture-ala signature' or signature fracture is:

a) Gutter fracture & Contre coup injury

b) Depressed fracture of skull

c) Ring fracture at foramen magnum

d) Sutural separation

Correct Answer - B

B i.e. Depressed fracture

Depressed fracture of skull vault is also known as 'Fracture-ala signature' or 'Signature fracture',

## 18. Flaying is seen in which type of laceration:

a) Tear

b) Avulsion

c) Split

d) Stretch

Correct Answer - B

B i.e. Avulsion

- *Tearing of skin & sub cutaneous tissue produced d/t blunt force* is called laceration. In it the *hair follicles and blood vessels are crushed* so external haemorrhage is not pronounced.

- On *Scalp, Eyebrows, Cheek bones (zygoma)*, Lower jaw, Iliac crest, Perineum & *Shin* a lacerated wound looks like incised wound.

- Avulsion or shearing laceration is produced by sufficient shearing force delivered at a acute angle to tear off (detach) a portion of a traumatized surface or viscus from its attachments. *Flaying is a type of avulsion* in which shearing & grinding force by weight (such as of lorry wheel passing over a limb) may produce *avulsion (separation of skin from underlying tissue) / degloving over a large area.*

## 19. Which of the following skull fractures is called a 'Motorcyclist's fracture'

a) Ring fracture of base of skull

b) Hinge fracture of base of skull

c) Comminuted fracture of skull

d) Depressed fracture of skull

Correct Answer - B

B i.e. Hinge fracture of base of skull

Type of fracture	Description	Type of force
<b>Fissure</b>	Linear crack in inner table or outer table or both.	Blows with an agent having a relatively broad striking surface or Forcible contact with a broad hard surface
<b>Depressed (Fracture-a-la-signature)</b>	Fracture pattern often resembles the weapon or agent which caused it	Heavy weapon with a small striking surface For example: Hammer, stone, chopper
<b>Comminuted</b>	There are two or more intersecting	It is often a complication of fissured or

lines or a depressed fracture. fracture, which divide the bone into three or more fragments. When there is no displacement of fragments, it resembles a spider's web or mosaic.

**Pond (Indented)**

Only in their skull bones are pliable  
Obstetric forceps

**Diastatic/ Sutural**

Separation of sutures in young persons  
Blunt injury

**Gutter**

Part of thickness of bone is removed  
Oblique bullet wounds

**Perforating**

Both tables are involved  
Pointed sharp weapons like daggers, knives and axe

*Guide to forensic medicine & toxicology: Jain (2004) p 98] Hinge fracture of base of skull, in which the base of skull is divided into two halves, each moving independently of each other like a hinge, is termed as motor cycle's fracture.*



**20.** A patient comes with pinpoint pupil, salivation, tremors, and red tears. Cholinesterase activity was 30% normal. Probable diagnosis is:

a) Opium

b) Organophosphate poisoning

c) Dhatura

d) Organochloride pesticide poisoning

Correct Answer - B

Ans.B i.e. Organophosphorus

\* These are characteristic features of anti-cholinesterase (organophosphate and carbamate) poisoning.

\* Features of Organophosphate poisoning:

- Muscarinic symptoms: Pinpoint pupil, salivation, lacrimation, urination, defecation, gastrointestinal distress, vomiting, bronchospasm, bradycardia.

- Nicotinic symptoms: Fasciculations and fibrillations of muscle, tachycardia, tachypnea.

- CNS symptoms: Tremors, giddiness, ataxia, coma.

- Red tears: Due to accumulation of porphyrin in the lacrimal glands

**21. 20-year-old female had abdominal pain previous week, USG and clinically normal. Again she presented with loss of vision, examination is normal. Diagnosis is:**  
***AIIMS 13***

a) Malingering

b) Masochist

c) Hypochondriac

d) Anxiety disorder

Correct Answer - A

Ans. Malingering

Malingering is fabricating or exaggerating the symptoms of mental or physical disorders for a variety of 'secondary gain' motives, which may include financial compensation (often tied to fraud); avoiding school, work or military service; obtaining drugs; getting lighter criminal sentences; or simply to attract attention or sympathy.

**22. When a doctor issues a false medical certificate, then he is liable under:**  
***AIIMS 11; Bihar 11; NEET 15***

a) Sec. 197 IPC

b) Sec. 87 IPC

c) Sec. 304A IPC

d) Sec. 338 IPC

Correct Answer - A  
Ans. Sec. 197 IPC

**23. A 19-year-old woman presented with primary amenorrhea, short stature, webbed neck and widely spaced nipples. Examination showed weak pulses in lower extremity and streak ovaries, raised FSH, no oocyte in histology of ovary. Karyotype most likely to be present:**  
***KCET 12; JIPMER 12; AIIMS 13; PGI 13***

a) 45XO

b) 47XXY

c) 46XY

d) 46XX

Correct Answer - A

Ans. 45XO

Turner's syndrome is a genetic disease with a karyotype of 45, X or 46, XX/45, X (mosaicism) or other structural abnormalities of X chromosomes.

With conventional chromosomal studies, about 50% of Turner syndrome patients show a 45,X pattern.

- Mosaicism of 45,X with other cell lines such as 46,XX, 46,XY, or 47,XXX are common.
- Structural abnormalities of an X chromosome (deletions, rings, or translocations), either isolated or mosaic with a 45,X or 46,XX cell line, are also seen.
- With modern cytogenetic techniques, mosaicism is increasingly being detected.

- The short stature in Turner syndrome appears to be caused by the absence of one copy of the SHOX gene, which is located on the short arm of the X chromosome.

**24. Ossification at two months:  
JIPMER 12**

a) Lunate

b) Capitate

c) Scaphoid

d) Hamate

Correct Answer - B

Ans. Capitate

*Capitate is the first carpal bone to ossify. Sequence of ossification in carpal bones: Capitate—>Hamate -Triquetral —>Lunate —>Scaphoid —>Trapezoid —\*Trapezium —>Pisiform*

**25. A 16-year-old female with normal pubic hair and breast development, presented with complaints of primary amenorrhea. Investigation shows normal karyotype. Most likely diagnosis is:**  
***AFMC 12; JIPMER 12; AIIMS 12, 13***

a) Mullerian agenesis

b) Turner syndrome

c) Testicular feminization

d) Kallmann syndrome

Correct Answer - A  
Ans. Mullerian agenesis

**26. Rigor mortis not seen in:**  
***AIIMS 13***

a) Fetus < 7 months of age

b) Old patients > 80 years

c) Well built female

d) Well built male

Correct Answer - A

Ans. Fetus < 7 months of age

Rigor mortis may not be seen in infant <7 months due to smaller muscle mass.

**27. Surgical alteration or suturing of gunshot wounds may create problems in distinguishing entry from exit. This is called as:  
*AIIMS 13***

a) Formication phenomenon

b) Gordon phenomenon

c) Cookie cutter phenomenon

d) Kennedy phenomenon

Correct Answer - D

Ans. Kennedy phenomenon

Kennedy Phenomenon: Surgical alteration or suturing of gunshot wounds creates problems. The evaluation of the wound, whether it was an entrance or an exit wound becomes difficult.'

**28. Cause of Berry aneurysm:**  
***AIIMS 11***

a) Degeneration of internal elastic lamina

b) Degeneration of media/muscle cell layer

c) Deposition of mucoid material in media

d) Low grade inflammation of vessel wall

Correct Answer - B

Ans. Degeneration of media/muscle cell layer

**29. Characteristic features of superficial burns are all, *except*:**  
***TN 06; WB 09***

a) Damage no deeper than papillary dermis

b) Blisters absent

c) Loss of epidermis

d) Pinprick is not painful

Correct Answer - D  
Ans. Pinprick is not painful

**30. Most accurate method of diagnosis of pregnancy at 6 weeks:  
*AIIMS 13; JIPMER 14***

a) Hegar's sign

b) X-ray examination

c) Palpation of fetal parts

d) Fetal heart sound by USG

Correct Answer - D  
Ans. Fetal heart sound by USG

**31. Order in lochia:**  
***AIIMS 13***

a) Serosa, rubra, alba

b) Rubra, serosa, alba

c) Alba, rubra, serosa

d) Rubra, alba, serosa

Correct Answer - B  
Ans. Rubra, serosa, alba

**32. Blackfoot disease is caused by:**  
***NEET 14***

a) Arsenic

b) Cadmium

c) Lead

d) Mercury

Correct Answer - A  
Ans. Arsenic

**33. Priapism occurs in:**  
***AIIMS 06; 13***

a) Snake bite

b) Rati poisoning

c) Cantharide poisoning

d) Arsenic poisoning

Correct Answer - C  
Ans. Cantharide poisoning

**34. Opium poisoning is treated with:**  
***MAHE 06; Bihar 12; UPSC 13***

a) Naloxone

b) Atropine

c) Neostigmine

d) Physostigmine

Correct Answer - A  
Ans. A. Naloxone

### 35. Nysten's rule pertains to ?

a) Rigor mortis

b) Identification

c) Bullet injuries

d) Putrefaction

Correct Answer - A

**Ans. is 'a' i.e., Rigor mortis**

**Rigor mortis**

- It is defined as contraction, stiffening, shortening and opacity of muscles after death.
- It occurs after molecular (cellular) death. In tropical countries (e.g. India), it *begins 1-2 hours after death*, takes further 2 hours to develop, and lasts for 18-36 hours in summer and 24-48 hours in winter.
- In temperate countries, it begins in 3-6 hours, takes further 2-3 hours to develop and lasts for 2-3 days.
- All muscles of body are involved, i.e. voluntary or involuntary.
- However, it does not start in all muscles simultaneously (Nysten's rule).
- Involuntary muscles (heart) are involved first than voluntary muscles.
- Sequence of muscle involvement is as follows : *Heart > upper eyelid > neck > jaw > face > chest > upper limb > abdomen > lower limb > finger and toes.*
- It passes off in the same order in which it has appeared.

## 36. Professional misconduct ?

a) Selling drugs

b) Dichotomy

c) Issuing false certificate

d) All of the above

Correct Answer - D

**Ans. is 'd' i.e., All of the above**

**There is no fixed list of conduct constituting professional misconduct, however some important examples are :?**

- \* Criminal abortion
- \* Treating the patient in drunk state
- \* Unnecessary advertisement
- \* Adultery
- \* Being drug addict
- \* Dichotomy (fee-sharing)
- \* Avoiding consultation on religious ground viii) Issuing false certificates
- \* Association with drug manufacturing firms
- \* Assisting unqualified person (covering)
- \* Appointing unqualified staff
- \* Keeping agents to get patients
- \* Neglect of patient or not attending emergency
- \* Selling drugs or instruments
- \* Wrong investigation or treatment
- \* Not explaining the prognosis
- \* Experimentation on patient.

- As per Code of Medical Ethics by MCI, every physician shall maintain the medical records of indoor patients for a period of 3

years from the date of commencement of the treatment in a standard prescribed format. If any request is made either by the patients/authorized attendants or legal authorities involved, the records shall be issued within 72 hours. If the medical records are not issue, it amounts to misconduct.

- As per MCI (3 letter word) medical record to be stored for 3 years and give within 3 days (72 Hours)

**37. In the forensic laboratory some samples are being examined under ultraviolet ray, the doctor notices blue white color of the sample. Which is the most probable content of the sample**

a) Semen

b) Urine

c) Pus

d) Leucorrhoea discharge

Correct Answer - A

Ans. a. Semen

- In sexual offences, a preliminary examination under filtered ultraviolet light can be made.
- Stains of urine, vaginal discharge and seminal fluid show a bright fluorescence.
- The fluorescence of seminal stains is of a bluish-white colour and such stains are selected for further examinations.

#### **Examination of Seminal Stains**

##### **Physical Examination:**

- A preliminary examination under filtered ultraviolet light<sup>Q</sup> can be made.
- Stains of urine, vaginal discharge and seminal fluid show a bright fluorescence.
- The fluorescence of seminal stains is of a bluish-white colour and such stains are selected for further examinations<sup>Q</sup>

**Chemical Examination: Mnemonic - 'create A F B'**

- Creatine Phosphokinase test<sup>Q</sup>: Depends on presence of CPK<sup>o</sup> in semen
- Acid Phosphatase test<sup>Q</sup>: Depends on presence of acid phosphatase in semen
- Florence test<sup>Q</sup>: Depends on presence of Choline<sup>Q</sup> in semen.
- Barberio's test<sup>Q</sup>: Depends on presence of Spermin<sup>Q</sup> in semen

**Microscopic examination**

- Involves identification of spermatozoa under microscope.
- Fluorescence microscopy is based on the principle that the Y-chromosome is fluorescence to quinacrine<sup>o</sup>.

**Electrophoretic Methods:**

- Acid-Phosphatase Test<sup>Q</sup>
- LDH Isoenzyme Test<sup>Q</sup>

**38. A young man with known history of heroine addiction is brought in the emergency in unconscious state by his friends. On examination his pupil are pin point. What will be the treatment of choice**

a) Oral naltrexone

b) IV naloxone

c) Oral diazepam

d) Oral buprenorphine

Correct Answer - B

Ans. b. IV naloxone

- IV naloxone is the treatment of choice in Opioid overdose.
- So, in this patient with suspected Opioid (heroine) overdose, treatment of choice is IV naloxone

#### **Treatment of Opioid Overdose**

##### **Treatment of opioid overdose requires:**

- **Naloxone**<sup>o</sup>: 0.4-2.0 mg IV or IM with expected response within 1-2 minutes
- Support of vital functions:
- Oxygen and positive pressure breathing
- IV fluids
- Presser agents for hypotension
- Cardiac monitoring to detect QT prolongation

#### **Opioid**

##### **Withdrawal Syndrome**

- Yawning<sup>o</sup>, Insomnia, Dysphoric mood

- Water loss from different orifices° (Lacrimation°, sweating°, diarrhea°, vomiting, rhinorrhea°)
- Increased vitals° (BP, Pulse, RR, Temperature)°
- Pupillary dilation, piloerection°

**DOC in withdrawal syndrome**

- Methadone (1<sup>St</sup> choice)
- Clonidine (2<sup>d</sup> choice)

**Pupillary reaction**

**Miosis (Constricted pupil)**

- Carbolic acid°
- Chloral hydrate°
- Morphine (opium)°
- Organophosphorus poisoning
- ° Barbiturates°
- Pontine hemorrhage°
- Muscarine
- Nicotine

**Mydriasis (Dilated pupil)**

- Viper venom°
- Dhatura°
- Alcohol°
- Aconite°
- Nux vomica°
- Cyanide, cocaine, CO°
- Chloroform
- Ether
- Pethidine

**39. A woman assaulted by neighbor was brought to you in the emergency department with fracture of middle tooth. Injury was extended medially to the mouth and there was also contusion to bilateral leg. What is the nature of the injury**

a) Grievous injury

b) Simple injury

c) Dangerous injury

d) Assault

Correct Answer - A

**Ans. a. Grievous injury**

- Fracture or dislocation of a bone or a tooth constitute Grievous injury.
- **Grievous Injury (Sec 320 IPC)**
- Emasculation
- Permanent privation of either eye°
- Permanent privation of either ear
- Privation of any member (part, organ or limb) or joint
- Permanent disfiguration of head or face°
- Fracture or dislocation of a bone or a tooth°
- Destruction or permanent impairing of powers of any member or joint
- Any hurt which endangers life, or which causes the sufferer to be, during the space of 20 days, in severe body pain, or unable to follow his daily routine°.

---

**40. A police officer brings the aborted product of conception of size 2 cm and weight 10 gm. For all forensic purposes what will be the age of the fetus**

a) 2 weeks

b) 4 weeks

c) 6 weeks

d) 8 weeks

Correct Answer - C

Ans. c. 6 weeks

**Rule of Hasse**

- Rule of Hasse is used to determine the age of fetus from crown to heel length in cm.
- During first five months, Length in cm = (Age in months)<sup>2</sup>
- After age of >5 months, Age in months = (Length in cm)/5

**Age of the Fetus**

**End of first month**

- Length 1 cm, weight two and half gram
- Eyes are seen as two dark spots and mouth as a cleft

**End of second month**

- Length 4 cm, weight 10 gms
- Hands and feet are webbed°
- Anus is seen as a dark spot

**Age of the Fetus**

**End of third month**

- Length 9 cm, Weight 30 gms
- Eyes are closed°, pupillary membrane appears

- Nails appear and neck is formed

#### **End of fourth month**

- Length 16 cm, weight 120 gms°
- Sex can be recognized

#### **End of fifth month**

- Length 25 cm, weight 400 gms
- Nails are distinct and soft°
- Light hairs appear on head°

#### **End of sixth month**

- Length 30 cm, weight 700 gms
- Eyebrow and eyelashes appear°
- Subcutaneous fat begins to be deposited°
- Testes are seen close to kidney

#### **End of seventh month**

- Length 35 cm, weight 900-1200 gms
- Nails are thick
- Eyelids open and pupillary membrane disappears°
- Testes found at external inguinal ring°

#### **End of eighth month**

- Length 40 cm, weight one and half to two kg
- Nails reach the tips of fingers°
- Left testes in scrotum°

#### **End of ninth month**

- Length 45 cm, weight two and half to three kg
- Scalp hair is dark and 4 cm long°
- Scrotum is wrinkled and contains both testes°

#### **End of tenth month**

- Length 50-53 cm, weight 2.5-5 kg
- The nails project beyond the end of fingers but reach only the tip of the toes

**41. A person keeps a man under his power and threatens him to assault or cause harm without any intension to kill comes under**

a) Section 44

b) Section 351

c) Section 319

d) Section 320

Correct Answer - B

Ans. b. Section 351

**Assault**

- An assault is an offer or threat or attempt to apply to body of another in a hostile manner (Section 351, 1PC)Q.

## 42. Choking is seen in

a) Revolver

b) Sporting rifle

c) Shotgun

d) Pistol

Correct Answer - C

Ans. c. Shotgun

- Choking is the constricting device present at the muzzle end of the shotgun

### **Firearms**

#### **Rifled**

- Bore is having a number of spiral grooving, which runs parallel to each other but are twisted spirally°
- Rifling causes bullet to rotate or spin about longitudinal axis
- Spinning gives gyroscopic stability to the bullet
- This increases the accuracy and also imparts greater power of penetration

**Example: Rifle, revolver, pistol etc**

#### **Smooth-Bored**

- Interior of the barrel is smooth°
- When the entire barrel from breech to muzzle same diameter, it is called as cylinder bore
- When the distal 7-10 cm is narrowed, this is known choking or choke-bore
- Some smooth barreled firearms have **small their bore near the muzzle end rifled**, which are 'paradox guns'

**Example: Shotgun, musket, country made guns**

### 43. Double based smokeless gun powder consists of

a) Nitrocellulose plus nitroglycerine

b) Nitrocellulose plus sulphur

c) Potassium nitrate plus nitroglycerine

d) Potassium nitrate plus charcoal

Correct Answer - A

Ans. a. Nitrocellulose plus Nitroglycerine

#### **Gun-Powder**

#### **Smokeless Powder**

- Nitrocellulose (gun cotton)°
- Nitrocellulose and
- Nitroglycerine
- (double base)°

#### **Smoke producing powders**

#### **Black Powder:**

- It is described in FG, FFG, FFFG and so on depending on the size of the grains.
- The finer and faster burning grains have more numbers of Fs.
- It contains PCS°
- Potassium nitrate (75%)°
- Charcoal (15%)°
- Sulphur (10%/0)°

#### **Pyrodex:**

- PCS [Potassium nitrate charcoal, sulphur]
- Potassium perchlorate Sodium benzoate, Dicyandiamide, Dextrin wax

#### **Semismokeless powder**

- 80% of black and 20% of smokeless powder

**44. Choking is associated with which of the following firearm**

a) Revolver

b) Pistol

c) Shotgun

d) Rifle

Correct Answer - C  
Ans. c. Shotgun

**45. A person died due to bullet injury. On post-mortem examination, a metallic bullet was found in his body. This bullet showed the presence of primary and markings. These markings can be used for**

a) Identification of weapon

b) Knowing the range of firing

c) Severity of tissue damage

d) Knowing the time of crime

Correct Answer - A

Ans. a. Identification of weapon

- "Primary and secondary marks on the surface of the bullet help in identification of the gun. Primary markings on the surface of the bullet tells about the 'make' or type of the gun used and the secondary marks which are due to some elevation or depression on the inner surface of the barrel of the gun will tell specifically about the particular gun which has been used when compared with similar markings of a bullet test-fired from the suspected gun "

**46. A patient committed suicide by shooting a bullet into his right temple. On post-mortem examination, the skull was burst open. There was charring and cherry red discoloration along the track of bullet and the weapon was firmly clasped in the right hand of deceased. The bullet was fired from what distance**

a) Contact shot

b) Close shot at a distance of one feet from hand

c) Shot within range of smoking

d) Shot within range of tattooing

Correct Answer - A

Ans. a. Contact shot

- In a contact shot, the discharge from the muzzle, consisting of flame, powder grains, metallic particles, and hot gases are blown into the track of the bullet. This leads to charring of the track inside and pink coloration owing to formation of carboxyhemoglobin. Gases entering the track in a contact shot are under high pressure, which may lead to 'bursting fracture' of skull

**47. A young female presented with consumption of some substance in the emergency department. Greenish blue froth was seen coming out of her nostrils and oral cavity. The poisoning is most likely due to which of the following**

a) Arsenic poisoning

b) Copper poisoning

c) Mercury poisoning

d) Lead poisoning

Correct Answer - B  
Ans. b. Copper poisoning

**48. There is a case of infanticide. During the post-mortem examination, the doctor performs Breslau's second life test. This test detects changes in which of the following organ**

a) Brain

b) Heart

c) Lung

d) Stomach and intestine

Correct Answer - D

Ans. d. Stomach and intestine

**Breslau's Second Life Test (Stomach Bowel test)**

**Principle:**

- It assumes that a live born child would respire and therefore would also swallow some air into the stomach and bowel.
- Thus detecting the presence of air in stomach and intestine (positive test) proves live birth (even in absence of positive hydrostatic lung test if there had been some obstruction in respiratory). However, negative test (absence of air in stomach and bowel) does not always mean still-birth since air does not necessarily enter stomach in adequate amounts during act of breathing.

**Procedure:**

The stomach and intestine are removed separately after tying double ligature at each end, place them both in water. They *float in* water if respiration has taken place, otherwise they will sink

**No medicolegal value**

- Because air may be swallowed by child in attempting to free the air passage of fluid obstruction in case of still-birth.
- It is useless in putrefaction

### **Other Tests in Infanticide**

#### **For Lungs**

- Static test or Fodere's test<sup>a</sup>: Weight of lung before (30-40 g) and after 66 gm) is measured. The increase in weight of lung is due to increased blood flow
- Ploucquet's test<sup>a</sup>: Weight of lung is doubled after respiration (Before respiration-1/70 of body weight, after respiration-1/35 of body weight)
- Hydrostatic test (Raygat's test)<sup>a</sup>: It is based on a fact that on breathing, the volume of lungs is increased, which more than compensates the weight of additional blood, due to which their specific gravity is diminished.

#### **For Middle Ear**

Werdin's test: Before birth, the middle ear contains gelatinous embryonic connective tissue. With respiration, the sphincter at the pharyngeal end of eustachian tube relaxes and air replaces the gelatinous substance in few hours to five weeks. This is not reliable

**49. Last organ to be dissected during autopsy in death caused by asphyxia is:**

a) Neck

b) Head

c) Abdomen

d) Thorax

Correct Answer - A

Ans. a. Neck

- Last organ to be dissected during autopsy in death caused by asphyxia is neck
- Autopsy in Asphyxial Death**
- Detailed study of the neck organs is required during autopsy of asphyxia death.
  - Cranial, thoracic and abdominal organs are removed before dissecting the neck, so that, the body is drained of blood.
  - Such draining provides a clean bloodless field for the study of neck organs and prevents any artificial seepage of blood in soft tissues of the neck<sup>Q</sup>

**50. A 32-year old adult male broke the jaw of another in an alleged fight. The investigating police officer:**

a) Can arrest him only after procuring warrant

b) Can arrest him without warrant

c) May declare him hostile and put him in jail

d) May declare him sociopath and send him to mental asylum

Correct Answer - B

Ans. b. Can arrest him without warrant

- Fracture or dislocation of mandible is a 'Grievous injury' for which punishment is defined under IPC 325. It is a 'cognizable offence' hence a police officer can arrest the accused without warrant.
- "Cognisable offence: An offence for which a police officer can arrest a person without warrant from magistrate° e.g. rape, robbery, murder, dowry death, ragging°, death due to rash or negligent act."

**Grievous Injury (Sec 320 IPC)°**

- Emasculation°
- Permanent privation of either eye°
- Permanent privation of either ear
- Privation of any member (part, organ or limb) or joint
- Permanent disfiguration of head or face°
- Fracture or dislocation of a bone or a tooth°
- Destruction or permanent impairing of powers of any member or joint
- Any hurt which endangers life, or which causes the sufferer to be, during the space of 20 days, in severe body pain, or unable to follow his daily routinev°.



**51. Muscles are observed in a burns deceased. This indicates that the person is exposed to intense heat above what temperature**

a) 30°C

b) 40°C

c) 50°C

d) 60°C

Correct Answer - D

Ans. d. 60°C

- When temperature of flame is 65°C or above, body is rigid with limbs flexed known as pugilistic or fencing posture due to coagulation of albumin constituents of muscles (Boxer's posture in defense). It is seen in death due to burning, high voltage electrocution, or falling into hot liquid."



**53.**

**A patient died during surgery. The relatives allege that death was due to negligence. According to a recent Supreme Court judgment, doctor can be charged for Medical Negligence under section 304-A, only if:**

a) There is corporate negligence

b) Negligence is from inadvertent error

c) There is gross negligence

d) It falls under the doctrine of Res Ipsa Loquitor

Correct Answer - C

Ans. c. There is gross negligence

- A physician can be charged with criminal negligence in Section 304 A, when a patient dies from the effects of anesthesia during, an operation or other kind of treatment, if it can be proved that the death was the result of malicious intention, or gross negligence.
- "Section 304-A deals with criminal negligence. Criminal negligence occurs when the doctor shows gross lack of competence or inaction, gross recklessness or wanton indifference to the patient's safety, or gross negligence in the selection and application of remedies. It involves an extreme departure from the ordinary standard of care."  
**Inadvertent Negligence (Accidental negligence):**
- Inadvertent negligence can be called simple negligence.
- In this case, the harm done is neither foreseen nor willed  
**Corporate Negligence:**
- It occurs when a health care corporation failed to perform those duties, it owes directly to a patient or anyone else to whom it may

extend.

- If such a duty is breached and patient is injured due to result of the breach, the organization can be held under the theory of corporate negligence.

**Res Ipsa Loquitur:**

- Latin meaning of phrase is-the things or facts speaks for itself.
- This rule is applied when the following conditions are satisfied:
- That in the absence of negligence the injury would not have occurred ordinarily.
- That doctor had exclusive control over injury producing instrument or treatment
- That the patient was not guilty of contributory negligence.

**54. In a case of alcohol intoxication, motor incoordination and judgment errors occur at blood alcohol levels of:**

a) 30-80 mg/dL

b) 80-200 mg/dL

c) 200-300 mg/dL

d) >300 mg/dL

Correct Answer - B

Ans. b. 80-200 mg

- In a case of alcohol intoxication, motor incoordination and judgment errors occur at blood alcohol levels of 80-200 mg/dL (best choice among the given options).

**Physiological Effects of Alcohol**

Blood alcohol concentration Effects

0-50 mg% No significant effect or mild euphoria°

50-100 mg% Decreased inhibition and attention span, increased self confidence, slurring of speech, mild incoordination, alteration of judgment, nystagmus°.

100-150 mg% Some mental confusion, emotional stability, loss of critical judgment, ataxia, impaired memory sleepiness, slow reaction time°

150-200 Loss of muscular coordination, staggering gait, marked

100-300  
mg%

mental confusion, drowsiness exaggeration  
of emotions, dizziness

300-400  
mg%

Stupor, marked incoordination, marked  
decrease in response to stimuli, possibly  
coma

400 mg%  
and above

Anaesthesia, depression of response,  
respiratory failure, deep coma and  
death°.

**55. A young male presented with abdominal pain for the past 2 years. He also complains of weakness in his hands. His hemoglobin level was 8 gm/dL. The most likely diagnosis:**

a) Lead poisoning

b) Duodenal ulcer

c) Carcinoma stomach

d) Adenomatous polyposis coli

Correct Answer - A  
Ans. a. Lead poisoning

## 56. What is the most common cause of parasuicide?

a) Drug ingestion

b) Hanging

c) Cutting wrist

d) Firearms

Correct Answer - A

Ans. a. Drug ingestion

Parasuicide is a suicide attempt or gesture and self-harm where there is no result in death. It is a non-fatal act in which a person deliberately causes injury to him or herself or ingests any prescribed or generally recognized therapeutic dose in excess. It is considered to be a serious public health issue. Parasuicide is the strongest known indicator for a future successful suicide attempt. Examples of suicidal gestures include cutting, where the cut is not deep enough to cause significant blood loss, or taking a non-lethal overdose of medication.'- <http://en.wikipedia.org/wiki/Parasuicide>

`Maximum cases of near-suicides are due to drug overdose. In India, wrist cutting is equally common, but drug overdose is by far the most common cause of parasuicide in the world.'- Methods used for parasuicide: results of the WHO/EURO Multicentre Study on Parasuicide.

### 57. Fatal dose of arsenic in adults:

a) 20-30 mg

b) 50-60 mg

c) 60 to 80 mg

d) 100 to 200 mg

Correct Answer - D

Ans. d. 100 to 200 mg

Fatal dose of arsenic in adults is 100 to 200 mg.

**58.**

**A case of suspected homicide comes to a doctor. He is supposed to inform police under section of CrPC:**

a) 37

b) 39

c) 174

d) 176

Correct Answer - B

Ans. b. 39

`Section 39 of CrPC gives a list of offences, the information regarding which is to be mandatorily provided to the police. That is, the doctor is duty bound to provide information about these enlisted offences (in Sec 39 CrPC) to the police.'

### **Important Criminal Procedure Codes (CrPC)**

#### **CrPC Description**

- |     |  |
|-----|--|
| 39  | Doctor is duty bound to provide information about enlisted offences to the police <sup>Q</sup> |
| 53  | Examination of accused by medical practitioner at request of police <sup>Q</sup>               |
| 53A | Examination of accused of rape <sup>Q</sup>  |
| 54  | Examination of arrested person by medical officer at request of arrested person <sup>Q</sup>   |

- 61 Format of summons<sup>Q</sup>
- 62 Summons how served<sup>Q</sup>
- 70 Form of warrant of arrest and duration<sup>Q</sup>
- 174 Police inquest<sup>Q</sup>
- 176 Magistrates inquest<sup>Q</sup>
- 293 Exception to oral evidence<sup>Q</sup>
- 327 Open trial-closed roomIn camera trial-rape cases<sup>Q</sup>

## 59. Harakiri is death b):

a) Stab in neck

b) Stab in thorax

c) Stab in abdomen

d) Stab in wrist and neck

Correct Answer - C

Ans. c. Stab in abdomen

Hara-kiri is an unusual form of suicide where the abdomen is boldly punctured by a short sword in a sitting position resulting in one large fatal wound, causing sudden evisceration of internal organs resulting in sudden fall of intraabdominal pressure, followed by collapse, and death.'- Parikh's 6/e p4.21

A ritual form of suicide, by slashing the abdomen, formerly practiced in Japan, and commanded by the government in the cases of disgraced officials; disembowelment.'

## 60. Calibre is defined as:

- a) Distance between two diametrically opposite lands
- b) Distance between two diametrically opposite grooves
- c) Distance between opposite land and groove
- d) Ratio of the length and width of the barrel

Correct Answer - A

Ans. a. Distance between two diametrically opposite lands

The calibre of a rifled firearm is measured between a pair of diametrically opposite 'lands' across the bore.'-Textbook Of Forensic Medicine And Toxicology: Principles And Practice By Vij

### **Some Important Terms Related to Firearms**

Calibre *Distance between two diametrically opposite lands<sup>Q</sup>*

Action *Action means the assembly of the firing mechanism of the gun<sup>Q</sup>*

Ballistics *Science of the motion of a projectile*

**61. According to Galstaun method, iliac crest fuses in females at the age of:**

a) 13-15 years

b) 15-17 years

c) 17-19 years

d) 19-20 years

Correct Answer - C

Ans. c. 17-19 years

According to Galstaun method, iliac crest fuses in females at the age of 17-19 years.

Galstaun 1937 On Bengalis (Indian): Epiphyseal Fusion in Iliac Crest; Male: 19-20 years and Female: 17-19 years.'

<http://medind.nic.in/jal/t11/il/jaltlilp24.pdf> Estimation of Age from Epiphyseal Fusion in Iliac Crest (J Indian Acad Forensic Med. Jan-Mar 2011, Vol. 33, No. 1) Table no. 4

Galstaun G observed fusion of iliac crest in bengalee girls, between 17-19 years which is earlier. Dasgupta et al in Uttar Pradesh found fusion of the iliac crest at 19-20 years, which is similar with majority of the cases in this study. Sank/cyan S et al in Himachal Pradesh found fusion of the iliac crest in girls at 21 years which is a little later than the finding in this study.'

**62.**

## The legal responsibilities of an intoxicated person is given under Section of IPC

a) 82

b) 83

c) 84

d) 85

Correct Answer - D

Ans. d. 85

The legal responsibilities of an intoxicated person are given under section 85 of IPC.

### 63. A person is liable for punishment for perjury which is defined under?

a) Section 190 of IPC

b) Section 191 of IPC

c) Section 192 of IPC

d) Section 193 of IPC

Correct Answer - D

Ans. d. Section 193 of IP

A person is liable for punishment for perjury, which is defined under section 193 of IPC. Section 191 IPC defines perjury and section 193 IPC describes the punishment.

"Perjury means giving willful false evidence. The witness is liable to be prosecuted for perjury and the imprisonment may extend up to 7 years (Section 193, IPC)."- Reddy 29/e pe pll

#### **Hostile Witness**

- Hostile witness is one who is supposed to have some interest or motive for concealing part of the truth, or for giving completely false evidence. (Section 191, IPC)°

#### **Perjury**

- Perjury means giving willful false evidence.
- Whoever, being legally bound by an oath, or by an express provision of the law to state the truth, makes any statement, which is false, which he 344, CrPC). Q
- The witness is liable to be prosecuted for perjury and the imprisonment may extend up to 7 years (Section 193, IPC).a

**64. The most important sign of age determination as per Gustafson's method is:**

a) Root transparency

b) Root attrition

c) Root resorption

d) Paradentosis

Correct Answer - A

Ans. a. Root transparency

**Gustafson's Method**

- The age estimation of adult over 21 years depends on the physiologic age changes in each of the dental tissues.

**Attrition<sup>Q</sup>**

- Due to wear and tear from mastication, occlusal (upper) surface of the teeth is destroyed gradually; first involving the enamel, then dentin, and at last, pulp is exposed in the old age.
- It depends on the functional use of the teeth and also up on the hardness

**Paradentosis<sup>Q</sup>**

- Regression of the gums and periodontal tissues surrounding the teeth takes place in the advancing age, gradually exposing the necks and adjacent parts of the roots, due to which the teeth become loose and fall off.
- Poor oral hygiene increases paradentosis.

**Secondary Dentin<sup>Q</sup>**

- It may develop from the walls within the pulp cavity, and decrease the size of the cavity.

- First it is deposited at the pulp chamber and gradually extends downwards to the apex, and may completely fill the pulp cavity.

### **Cementum Apposition<sup>o</sup>**

- The cementum increases in thickness particularly due to changes in the tooth position, especially near the end of the root.
- Secondary cementum is slowly and continuously deposited throughout life and forms incremental lines.
- Incremental lines (devised by Boyde) appear as cross-striations on the enamel of teeth due to cementum apposition, and are thought to represent daily increments of growth.
- They can be seen on histological section.
- The age can be calculated by counting the number of lines from the neonatal line onwards.
- This is mainly applicable to infants.
- This is mainly applicable to infants.

### **Root Resorption<sup>Q</sup>**

- It involves both cementum and dentin, which show characteristically sharp grooves.
- Absorption of the root starts first at the apex and extends upwards.
- It usually occurs in the late age.
- It may be due to pathological process.

### **Transparency of the Root<sup>Q</sup>**

- It is not seen until about 30 years of age.
- The canals in the dentin are at first wide.
- With age they are filled by mineral, so that they become invisible and the dentin becomes transparent.
- It is the most reliable of all criteria<sup>Q</sup>.

**65. A person of eonism derives pleasure from.**

a) Wearing clothes of opposite sex

b) Fondling female body parts

c) Rubbing genitalia against body of other person

d) Seeing the opposite partner nude

Correct Answer - A

Ans. a. Wearing clothes of opposite sex

It is a person whose personality is dominated by the desire to be identified with the opposite sex. It is usually found in males who obtain sexual pleasure by wearing female dress.

**66. Cannabis is the most commonly used illicit drug in India. Which of the following is not derived from cannabis?**

a) Bhang

b) Charas

c) Ganja

d) Afeem

Correct Answer - D

Ans. d. Afeem

Afeem (opium) is derived from poppy (*Papaver somniferum*), not from cannabis.

Derivatives of cannabis

Bhang

Majoon

Ganja

Charas or Hashish

**67. The characteristic burnt rope odour is caused by toxin of:**

a) Cannabis

b) Tobacco

c) Strychnine

d) Chloral hydrate

Correct Answer - A  
Ans. a. Cannabis

## 68. The active principle of white oleander is:

a) Nicotine

b) Nerin

c) Abrine

d) Pilocarpine

Correct Answer - B

Ans. b. Nerin

Nerium odorum (white oleander, kanero) grows wild in India.

. Seed pod is slim, cylindrical, ribbed, up to 15 cm. long, turns brown, dries and splits, releasing small seeds tipped with brown hair.

. All parts of the plant including nectar are poisonous.

. It contains several cardiac glycosides, primarily:

- Oleandroside (Oleandrin) and Nerioside (Nerin), both of which resembles digitalis in action

- Folinerin

- Rosagenin

**69. A doctor is treating a patient with viper snake bite. He should not forget that viper venom is:**

a) Histotoxic

b) Vasculotoxic

c) Musculotoxic

d) Neurotoxic

Correct Answer - B

Ans. b. Vasculotoxic

Neurotoxic - Elapids (Cobra, Coral, Krait)

Vasculotoxic - Vipers

Myotoxic - Sea Snakes

**70. A 24 years old female from rural area is brought to the emergency department with nausea, vomiting and breathlessness 2 hours after insecticide ingestion. On examination, there is pin-point pupils and kerosene-like smell emitting from the patient. Which of the following is not correct regarding the management of this patient?**

a) Atropine reverses respiratory muscle weakness

b) Atropine is the antidote of choice

c) Plasma AChE has no prognostic value

d) Activated charcoal has no proven therapeutic benefit

Correct Answer - A

Answer- A (Atropine reverses respiratory muscle weakness)

- The effect of acute intoxication by one anti-cholinesterase agents are manifested by muscarinic and nicotinic signs and symptoms.

**71. All of the following are true about methanol poisoning except:**

a) Fomepizole is a competitive inhibitor of aldehyde dehydrogenase

b) Toxic level of methanol is 1.25 gm/kg body weight

c) Formic acid is mainly responsible for toxicity

d) Methanol causes obscured snowy vision

Correct Answer - A

**Answer- A. Fomepizole is a competitive inhibitor of aldehyde dehydrogenase**

- Fomepizole is a competitive inhibitor of aldehyde dehydrogenase (Ref: Reddy 33/e p582, 31/e p387)
- Fomepizole is a specific inhibitor of alcohol dehydrogenase, not the aldehyde dehydrogenase.

## 72. Which of the following IPC match is Incorrect?

a) Section 300: Murder

b) Section 304: Culpable homicide not amounting to murder

c) Section 306: Attempt to suicide

d) Section 307: Attempt to murder

Correct Answer - C

Answer: c. Section 306: Attempt to suicide (Ref Reddy 33/e p292, 28/e 423-426; Textbook on the Indian Penal Code

\* sec 309 IPC: Attempt to commit suicide -- ( 1 years imprisonment + fine)

\* When one attempts to commit suicide and fails it, that is punishable under the Indian Penal Code. It means when a person fails to commit suicide because of any reason only then **Section 309 of Indian Penal Code will apply.**

\* shall be punished with simple imprisonment for a term which may extend to one year or with fine, or with both.

**73.**

**Under section 304A of IPC, for a proved case of medical negligence, The maximum punishment of imprisonment is up to:**

a) 1 year

b) 2 years

c) 3 years

d) 5 years

Correct Answer - B

Answer: b. 2 years (Ref Reddy 33/e p35, 29/e p260,

Under section 304A of IPC, for a proved case of medical negligence, the maximum punishment of imprisonment is up to 2 years.

**74. Two bodies are found outside the car following an accident. The doctor conducting the autopsy was able to decide who was driver based on all of these features except:**

a) Whiplash injury

b) Steering wheel imprint

c) Sparrow foot marks

d) Seat belt abrasion over left shoulder

Correct Answer - C

**Ans: C.Sparrow foot marks**

(Ref Reddy 34/e p263, 33/e p281)

**Sparrow footmarks:**

\* Occur in both driver as well as passengers.

\* Does not differentiate between driver & passenger.

\* **Multiple punctuate lacerations of lace produced.**

- **Due to shattering of windscreen glass into multiple small cubical fragments with relatively blunt edges.**

- Hence, also windshield glass injury.

**Motor Vehicle Injuries:**

**Car (Four-wheeler) Injuries:**

Whiplash injury Acute hyperflexion followed by hyperextension of neck due to violent acceleration or deceleration force.

Applied to (front seat) passenger (passenger >Driver)

Occurs due to sudden stop of car. throwing forward

Steering wheel impact type injury	the driver Throat crushed across top of steering wheel or horn ring (Occurs in
Seat belt syndrome	Contusion, laceration, perforation & avulsions of small intestine, omentum, & mesentery There may be rupture of abdominal aorta, spleen, liver, pancreas,
Hinge fracture	Skull base fracture running along the petrous ridges through sella turcica, i.e.
Ladder tears	Multiple transverse intimal tears in aorta, adjacent to main rupture.

**75.**

**Mr. X fired his gun at Mr. V who moved and escaped with the bullet only grazing his thigh. There was only a little bleeding without any significant injury. Mr. X is liable for arrest under which section of Indian Penal Code:**

a) 302

b) 304

c) 324

d) 326

Correct Answer - C

Ans: C. 324

Usage of a dangerous weapon for hurting - Under section 324 of IPC.

**Section Deals with**

302  
IPC      Punishment for murder°

304A      Causing death by negligence, punishment for up to 2 years  
IPC      (medical negligence)

304B  
IPC      Dowry death°, punishment 7 years to life imprisonment

324  
1PC      Voluntarily causing hurt by dangerous weapons or means

326  
1PC      Voluntarily causing grievous hurt by dangerous weapons or means

**76.**

**The high court has the power to stay the execution of a pregnant woman according to which section of Criminal Procedure Code?**

a) 416 CrPC

b) 417 CrPC

c) 418 CrPC

d) 419 CrPC

Correct Answer - A

**Ans: A. 416 CrPC**

(Ref Reddy 33/e p392; Textbook on the Indian Penal Code by Krishna Deo Gaur 4/e p594, the-indian-penal-code-pdf:d74214920)

**Section 416 of Criminal Procedure Code, 1973:**

- Postponement of capital sentence pregnant woman.
- I.e., The power of high court to stay execution of a pregnant woman.
- Sometimes if fit, commutes the sentence to life imprisonment.

**77. A man fell down from a height of 35 feet. Eyewitnesses say that he landed on his feet. Which of the following injury is possible?**

a) Gutter fracture skull with cervical spine injury

b) Pond fracture skull with cervical spine injury

c) Depressed fracture skull with cervical spine injury

d) Ring fracture of foramen magnum with lumbar spine injury

Correct Answer - D

Ans: D. Ring fracture of foramen magnum with lumbar spine injury  
(Ref Reddy 34/e p23 I , 33/e p247; Parikh s. 6/ 4 94-4.97)

**Ring fracture:**

- Commonly used to signify any fracture around foramen magnum.
- Refers to fissured fracture about 3.5 cm outside foramen magnum at back.
- Involves middle ear laterally & roof of nose anteriorly.
- Rare & requires increased production of force.

**Causes:**

- Fall from a height on feet or buttocks.
- Sudden violent turn of head on spine.
- Severe blow on vertex driving skull downwards on vertebral column.
- Heavy blow directed underneath occiput or chin.

## 78. Rat hole is associated with which injury?

a) Bomb injury

b) Burn injury

c) Postmortem artifact

d) Bullet injury

Correct Answer - D

Ans: D. Bullet injury

- Rat hole is associated with a bullet injury.
- Intermediate-range shotgun wounds:  
From a distance of 60-90 cm:
  - Single irregular circular aperture 4 to 5 cm.
  - Irregular & lacerated edges produced.
  - Scattered shots after entering the wound.
  - Much damage to internal tissues.
- From a distance of 1.5 meters:
  - Shot mass enters the body in one mass.
  - Produces round defect.
  - Abraded margins.
- From a distance of 2 meters:
  - Shot mass spreads.
  - Wound entry irregular, with ragged margins (rat hole).
- Rat hole:
  - About 5 cm in diameter.
  - Few satellite margin perforations into the main defect.

## 79. Segmentation of blood in blood vessel after death is known as:

a) Kevorkian sign

b) Rokitansky sign

c) Kennedy phenomenon

d) Tache noir

Correct Answer - A

Ans: A.Kevorkian sign

**Kevorkian sign:**

- Fragmentation or segmentation (trucking or shunting) of blood columns after death.
- Appears in retinal vessels within minutes after death & persists for about an hour.

**80. A person was advised by his orthopedic surgeon to get regular dressing of his wound done. But the patient did not give much care. During follow-up, patient was repeatedly told to get the dressing done timely but patient didn't do the dressing himself, saying that he was busy. Finally the wound enlarged and the underlying bone developed osteomyelitis. Which of the following statement is true regarding above-mentioned situation?**

a) Doctor is guilty under "Last clear chance" doctrine

b) Doctor is not guilty under "Contributory negligence"

c) Doctor is punishable under avoidable negligence

d) Doctor is guilty as he prescribed wrong medicines

Correct Answer - A

Ans: A. Doctor is guilty under "Last clear chance" doctrine  
(Ref Reddy 34/e p38, 33/e p40)

**Last Clear Chance Doctrine:**

- Possibility of doctor saving the patient (plaintiff) by dressing wound properly the 2<sup>nd</sup> time, hence curing without osteomyelitis development.
- Hence, doctor is partly guilty for the outcome (osteomyelitis).

**Criteria included:**

- Failure of doctor to prevent damage resulting from negligent act of patient, even after getting clear time, he cannot plead contributory negligence in civil cases.

**Elements of proof:**

- Defendant- Doctor.
- Defendant recognized the danger & acquired a duty to avoid it.
- Defendant failed to avoid danger.

**Plaintiff - Patient.**

- Plaintiff placed themselves in a situation of risk or danger through their own negligence.
- Plaintiff could not avoid the danger.
- Plaintiff was injured as a result of the defendant's failure.

**81. According to the 2013 amendment the age for sexual consent is:**

a) 15 years

b) 16 years

c) 18 years

d) 20 years

Correct Answer - C

Ans: C. 18 years

**2013 amendment:**

- Age for sexual consent in India - Increased to 18 years.
- Means any sexual activity irrespective of the presence of consent with a woman below 18 years of age will constitute rape.

**Section 375 Sexual Assault:**

- Sexual assault means "with or without the complainant's consent when such complainant is less than eighteen years of age."

## 82. Acrid smell or pear smell is seen in:

a) Ether

b) Paraldehyde

c) Nitrobenzene

d) Carbolic acid

Correct Answer - B

Ans: B. Paraldehyde

(Ref: Reddy 34/e p349, 33/e p507)

### Characteristic Odours produced by Toxins

Odour	Toxins
Acrid (Pear smell)	Paraldehyde, Chloral hydrate
Bitter almonds	Cyanide
Burnt rope	Marijuana (Cannabis)
Disinfectant	Phenol (Carbolic acid), Creosote
Garlic	Phosphorus, Tellurium, Thallium Dimethyl sulfoxide (DMSO)
Fish or raw liver (Musty)	Zinc phosphide, Aluminum phosphide
Kerosene like	Organophosphate
Mint	Methylsalicylate (Oil of Wintergreen), Naphthalene, Camphor, p- dichlorobenzene
Mothballs	o-chlorobenzylidene malonitrile (Tear Hydrogen sulphide, Carbon disulphide
Pepper	Mercaptans, Disulfiram, N- acetylcysteine
Rotten eggs	Nitrobenzene
Shoe polish	

**Vinegar**

**Acetic acid; Hydrofluoric acid**

### 83. Sweating is not present in:

a) Heat syncope

b) Heat cramp

c) Heat stroke

d) Heat fatigue

Correct Answer - C

Ans: C. Heatstroke

**Heatstroke (Heat hyperpyrexia/Sunstroke/ thermic fever/systemic hyperthermia):**

- Due to the failure of the heat-regulating mechanism.
- Caused by failure of cutaneous circulation & sweating.
- Occurs due to exposure to heat in open (suns infrared rays, and/or too hot atmosphere) & humid environment.

**Features:**

- All signs of shock are present
- Sudden collapse with loss of consciousness.
- Dry skin, hot flushes with the absence of sweating.

## 84. In judicial hanging, the knot is placed at:

a) Below the chin

b) Angle of the jaw

c) The back of the neck

d) Choice of hangman

Correct Answer - B

Ans: B. Angle of the jaw

Judicial Hanging:

- Placement of knot beneath the chin (submental position) - Most effective.
- Ensures quicker death.
- In India & UK, left sub-aural (below the angle of the jaw) knot - Preferred for hanging.

Process:

- The rope is looped around the neck & person is allowed to drop for 5-7 meters - According to weight, age & build of the person.
- A sudden stop causes fracture-dislocation usually at the level of C2-C3 or C3-C4 vertebra & rupture of brain stem between pons & medulla.
- Death is instantaneous.
- Heart-beat may continue for 15-20 minutes & spasmodic muscle jerking may occur for a considerable time.

**85. A bomb blast took place in Delhi following which 2 persons died. All of the following are true about their injuries except:**

a) Injuries occurred due to burns air blast

b) Force of explosion decreases rapidly

c) Force of explosion is directional

d) Bruise, laceration, fractures are triad of main explosive injuries seen

Correct Answer - D

**Ans: D. Bruise, laceration, fractures are the triad of main explosive injuries seen**

Marshall's triad is diagnostic of explosive injury.

**Marshall's triad –**

- **Bruises, abrasions & puncture lacerations.**
- Does not include fracture.

## 86. Shoe polish like smell is seen in:

a) Mercaptans

b) Lacquer

c) Paraldehyde

d) Nitrobenzene

Correct Answer - D

Ans: D. Nitrobenzene

(Ref Reddy 34/e p468, 33/e p507; Industrial Hygiene and Toxicology, General Principles/p174) Shoe polish like smell is seen in Nitrobenzene.

### **Nitrobenzene:**

- An oily yellow to yellow-brown liquid that smells like bitter almonds or shoe polish.
- Dissolves only slightly in water and easily in other chemicals.
- Man-made.
- Most common exposure is at workplaces that use nitrobenzene to produce dyes, drugs, pesticides or some types of rubber.

**87. Which acid does not show coagulation necrosis on contact?**

a)  $\text{HCl}$

b)  $\text{H}_2\text{SO}_4$

c)  $\text{HF}$

d)  $\text{HNO}_3$

Correct Answer - C

Ans: C.  $\text{HF}$

(Ref Reddy 34/e p493, 33/e p530; Principles of Clinical Toxicology 3/e p220; Forensic Pathology 3/ep241, 110).

- $\text{HF}$  does not show coagulation necrosis on contact.
- Hydrofluoric acid causes liquefaction necrosis.

## 88. Ashley rule is for determination of what:

a) Age

b) Sex

c) Height

d) Ethnicity

Correct Answer - B

Ans: B. Sex

(Ref Modern Medical Toxicology/p4)

- Ashley's rule is used to know the sex of sternum.
- It is also known as '149 rule'.

### **Differences between Male & Female sternum**

<b>Features</b>	<b>Male sternum</b>	<b>Female sternum</b>
Ashley's rule	Total length <b>&gt;149 mm</b>	Total length <b>&lt;149 mm</b>

**89. A man throws sulphuric acid on the face of his wife after a fight following which she comes to the emergency for supportive management. All of these statements are true about chemical burns except:**

a) Blisters are present

b) Ulcerated patches are present

c) Absence of singeing of hairs

d) Coagulation necrosis occurs at the site of burn

Correct Answer - A

Ans: A. Blisters are present

(Ref Parikh 6/e p4.168) Vesicles & blisters are usually absent in chemical burns.

**Chemical burn:**

- Occurs when living tissue is exposed to a corrosive substance such as a strong acid or base.
- Follows standard burn classification.
- Cause extensive tissue damage.

**Main types of irritant and/or corrosive products are:**

- Acids, bases, oxidizersreducing agents, solvents, and alkylants.
- Chemical weapons, e.g. vesicants such as mustard gas and lewisite, or urticants such as phosgene oxime.

**90. A doctor who performed the autopsy on a 26-year-old married woman, committing suicide found the cause of death to be aluminium phosphide poisoning. She was summoned in a court of law where he willingly hides this information. This is punishable under which section?**

a) IPC 193

b) CrPC 175

c) CrPC 69

d) IPC 189

Correct Answer - A

Ans: A. IPC 193

(Ref: Reaco 34/e p I 3, 33/e p392; Textbooi, on the Indian Penal Code by Krishna 1) Gaur 4/e p594; the-Indian-penal-code-pdfd74214920)

- Section 193 - In Indian Penal Code deals with punishment for giving false evidence.

## 91. Ewing's postulates concerns with which of the following:

a) Growth at the site following trauma

b) Growth after a neurological injury

c) Age related changes in the teeth

d) Old seminal stains

Correct Answer - A

Ans: a. Growth at the site following trauma  
(Ref Parikh 6/e p4.89).

### **Ewing's Postulates:**

**Certain criteria, known as 'Ewing's postulates', must be satisfied before a relationship between trauma and new growth is accepted:**

- The tumor must arise exactly at the site injured
- Definite and substantial trauma must be proved
- The tumor must be confirmed pathologically
- The tissue at the site must have been healthy before the trauma
- A reasonable interval—neither too long or too short—must elapse between the time of the trauma and the appearance of the tumor
- Though not one of the Ewing's original postulates, there should be some good scientific reason for ascribing the tumor formation to the injury and this is rarely possible.

## 92. Boiled lobster syndrome is seen in poisoning of:

a) Boric acid

b) HNO<sub>3</sub>

c) H<sub>2</sub>SO<sub>4</sub>

d) Phenol

Correct Answer - A

Ans: A. Boric acid

(Ref: Principles of Clinical Toxicology 3/e p221).

- Boiled lobster syndrome is seen in poisoning of Boric acid.
- Features:**
- Major symptom is erythema, desquamation and exfoliation.
  - The skin of the patient looks like a 'boiled lobster'.

**93.**

**An autopsy was performed on a case of accidental death. It showed two linear fractures on petrous part of temporal bone. Which of the following rules gives the sequence of fractures?**

a) McNaughton's rule

b) Puppe's rule

c) Young's rule

d) Dunlop's rule

Correct Answer - B

Ans: B. Puppe's rule

(Ref. Reddy 34/e p213. 33/e p225, Forensic Pathology 3/e p241, 110)

**Puppe's rule:**

- Used to determine that which fracture line has occurred before the second one.

## 94. Which of these findings is not specific of blast injury?

a) Abrasion

b) Bruise

c) Puncture laceration

d) Fracture

Correct Answer - D

Ans: D. Fracture

(Ref: Reddy 34/e 1)225-227, 33/e p239-240; Parikh 6/e p4.183; Sabiston 19/e p612-613; Bailey 26/e p430 25/e p422-423)

- Fracture is not specific of blast injury.
- **Marshall's triad:**
- Diagnostic of explosive injury.
- Includes bruises, abrasions & puncture lacerations.

**95. According to National Crime Bureau, most common mode of suicide in India is:**

a) Drowning

b) Poisoning

c) Fall from height

d) Hanging

Correct Answer - D

Ans: D. Hanging

- According to National Crime Bureau, most common mode of suicide in India is hanging.

**Prominent means of committing suicides**

Hanging (41.8%)                      Self-Immolation (6.9%)

Consuming Poison (26.0%) Drowning

**96. Which of the following statement is false statement about snake-bites?**

a) Anti-venom is not effective in humpnosed pit viper bite

b) Cobra venom is neurotoxic

c) Atropine premedication should be used before administering Neostigmine

d) Neostigmine has a role in krait bite.

Correct Answer - D

Ans: D. Neostigmine has a role in krait bite.

(Ref: Parikh 6/e p9.47; Harrison 19/e p2736; Snake Bite: Indian Guidelines and Protocol p 425)

**Role of neostigmine in snake-bite:**

- An anticholinesterase.
- Particularly effective in postsynaptic neurotoxins (cobra).
- Not useful against presynaptic neurotoxin (common krait & Russell's viper).
- Polyvalent Anti-snake venom - Ineffective against humpnosed pit viper (Hypnale).

**97. All are true for the following about methanol poisoning EXCEPT:**

a) Fomepizole is a competitive inhibitor of aldehyde dehydrogenase

b) Minimum lethal dose of methanol is 1.25 ml/kg body weight

c) Formic acid is mainly responsible for toxicity

d) Methanol causes snow field vision

Correct Answer - A

Answer- a-Fomepizole is a competitive inhibitor of aldehyde dehydrogenase

**Fomepizole:**

- Fomepizole (4-methylpyrazole) is a specific inhibitor of alcohol dehydrogenase- retards methanol metabolism
- Loading dose is 15 mg/kg IV followed by 10 mg/kg every 12 hours till serum methanol falls below 20 g/dl, has been found effective and safe.
- Minimum lethal dose of methanol is 1.25ml/kg body weight:  
Minimum lethal dose of methanol is 0.3-1.0 gm/kg
- Formic acid is mainly responsible for toxicity:
- The methyl alcohol poisoning there is CNS depression, cardiac depression and optic nerve atrophy. These effects are produced due to Formaldehyde and formic acid.
- The specific toxicity of formic acid is retinal damage.

**98.**

## Doctor or nursing disclosing the identity of rape, victim is punishable under the following section of IPC?

a) Section 228A

b) Section 222A

c) Section 224A

d) Section 226A

Correct Answer - A

Answer- A. Section 228A

- 'Section 228A of the IPC a little known section introduced by an amendment to the law by the Parliament in 1983, deals with the disclosure of the identity of a victim of certain offences and prevents it in rape cases. The section states that anyone who prints or publishes the name or any matter that may reveal the identity of a victim of rape shall be punished With fine and up to two years in jail. The law specifically lays down that under section 376 or 376A, 376 B, 376 C or 376 D, any victim of rape has to have her identity protected from public.

## 99. Lateral traction test is done in unnatural sexual offences in:

a) Habitual active agent

b) Pedophilia active agent

c) Bestiality active agent

d) Habitual passive agent

Correct Answer - D

Answer- D. Habitual passive agent

- Lateral traction test is done in unnatural sexual offences in habitual passive agent.
- The useful guide as to the patient's habituation to anal intercourse is lateral buttock traction test.
- In lateral buttock traction test, the thumb is placed on the cheeks of the buttock on either side of the anus and gentle lateral traction is applied.
- In patients who are not accustomed to anal penetration (penile or instrumental or any other) the traction results in reflex constriction of anal sphincter.
- The patients, who are used to anal penetration, react to the lateral traction test by relaxation of the sphincter.

**100. According to 'DELHI ANATOMY ACT 1957', a person died in road traffic accident, the dead body is said to be unclaimed after.**

a) 24 hours

b) 48 hours

c) 72 hours

d) 96 hours

Correct Answer - C

Answer- C. 72 hours

- According to 'DELHI ANATOMY ACT 1957', a person died in road traffic accident the dead body is said to be unclaimed after 72 hours.
- According to Delhi Anatomy Act 1953, the hospital authority can utilize an unclaimed body (a person who dies in hospital, prison or public places, which has not been claimed by any of his near relatives or personal friends within the prescribed timeline of 48 hours) for the purpose of conducting anatomical examination and dissection or other similar purpose.

## 101. Embalming without issuing death certificate is punishable under section:

a) IPC 201

b) IPC 297

c) IPC 299

d) IPC 498

Correct Answer - A

Answer- A. IPC 201

- Embalming without issuing death certificate is punishable under section IPC 201.
- 'In a medico legal case, conducting embalming before autopsy invites liabilities, under section 201 IPC (causing disappearance of evidence of offence, or giving false information to screen offender).

**102.**

## IPC section dealing with illegal abortion with woman consent?

a) 310

b) 312

c) 313

d) 314

Correct Answer - B

Answer- B. 312

- 'Indian Penal Code (IPC) Sections 312 (causing miscarriage), 315 (act done with intent to prevent child being born alive or to cause to die after birth), 316 (causing death of quick unborn child by act amount to culpable homicide) and Sections 3 and 4 of the Medical Termination of Pregnancy (MTP) Act 1971 for performing MTP without license and without taking medical advice.'

### 103. Aggravated penetrative sexual assault under POCSO 2012 are all except:

a) Threatening

b) Gang

c) During communal or secular violence

d) By police officer

Correct Answer - A

Ans. A. Threatening

Ref: KSN Reddy's The Essentials of Forensic Medicine and Toxicology 33<sup>rd</sup> edn; Page no. 36

- As per Protection of Children from Sexual Offences (POCSO) Act, an offence is treated as "Aggravated" when committed by a person in a position of trust or authority of child, such as member of security forces, police officers, public servant, etc.

#### **The Protection of Children from Sexual Offences (POSCO) Act, 2012**

- It is applicable to the whole India.
- It defines a child as any person below the age of 18 years and provides protection to all children <18 years from sexual abuse.
- Offences against children covered under this Act:
  1. Penetrative and aggravated penetrative sexual assault.
  2. Sexual and aggravated sexual assault.
  3. Sexual harassment.
  4. Using a child for prolonged purposes.
- It is now mandatory for police to register an FIR in all cases of child abuse.
- The child's medical examination can be conducted even prior to registration of an FIR. The IO has to get the child medically

examined in a government hospital or local hospital within 24 hours of receiving information about the offence with consent of the child or parent or a competent person whom the child trusts and in their presence.

- Some child-friendly procedure envisaged:
  1. At night no child to be detained in the police station.
  2. The statement of the child to be recorded as spoken by the child.
  3. Frequent breaks for the child during trial.
  4. Child not to be called repeatedly to testify.

### **Punishment**

<b>Offence</b>	<b>Punishment</b>
Penetrative sexual assault	7 years imprisonment
Aggravated penetrative sexual assault	10 years imprisonment
Sexual assault	3-5 years imprisonment
Aggravated sexual assault	5-7 years imprisonment
Sexual harassment	3 years imprisonment
Using a child for prolonged purposes	3-5 years imprisonment. For subsequent offence: 7 years imprisonment

## 104. Concentric teeth bite mark on forearm, what to do next?

a) 2 swab technique for saliva collection

b) Keep scale for measuring below the mark and take photo in the plane of bite

c) Complete description of injury as seen

d) Prepare cast using vinyl polysiloxane

Correct Answer - C

Ans: C. Complete description of injury as seen

Ref KSN Reddy's The Essentials of Forensic Medicine and Toxicology 33' edn; Page no. 97

- Important: The order of Bite mark investigation: C > B > A > D
- **Bite Mark Investigation**
- Complete description of injury as seen
- Photograph: Keep scale for measuring below the mark and take photo from different angle.
- Swabbing of saliva: To identify or exclude assailant from secretor status who exude blood group substance in the saliva.
- Impression of bite mark: Plastic substance (rubber or silicone based) or plaster of Paris is laid over the bite mark that hardens and produces permanent negative cast of the lesion.
- Skin carrying the bite is removed and preserved in formalin during autopsy.

**105. A 18-year-old girl was brought to OPD, labia majora separated, labia minora flabby, fourchette tear present and vagina is roomy but Hymen is intact. What could be possible?**

a) Virgin

b) False virgin

c) Premenstrual stage

d) Molestation

Correct Answer - B

Ans: b. False virgin

Ref: KSN Reddy's The Essentials of Forensic Medicine and Toxicology 33' edn; Page no. 392

#### **False Virgin**

- Hymen is intact but thick and the woman has had sexual intercourse. **Labia majora: Flabby**, may gap on abduction of thigh
- **Labia minora:** Loose, blackish-brown, cutaneous
- Vagina deep, roomy, dilated and capacious with less rugosed wall  
Vagina easily admits two fingers.

#### **True Virgin**

- **Labia majora:** Firm, rounded and complete
- **Labia minora:** Soft, sensitive and pink in color
- **Fourchette and posterior commissure:** Intact • **Vaginal wall:** Closely approximated
- **Vagina mucosa:** Rugose, reddish, sensitive to touch
- **Hymen:** Intact

**106. A 14 years old rape victim with 22 weeks of gestation coming to hospital. All of the following can be done *except*:**

a) Male doctor can examine her with female attendant

b) Gynecologist can abort the fetus upon the patient request

c) No need to collect vaginal swab

d) UPT not required

Correct Answer - B

**Ans. b. Gynecologist can abort the fetus upon the patient request**

Consent of woman is required before conducting abortion. Written consent of guardian is required if the woman is a minor (<18 years) or mentally ill person. In the question, age of patient is 14 years only, so the consent of the guardian is required for termination.

Termination is permitted upto 20 weeks of pregnancy only. So, gynecologist cannot abort the fetus upon the patient request.

## 107. Match the following declarations:

1. Geneva a. Torture
2. Tokya b. Abortion
3. Oslo c. Human experimentation
4. Helsinkid. Ethics

a) 1 =a, 2=b, 3=c, 4=d

b) 1 =b, 2=c, 3=d, 4=a

c) 1 =d, 2=a, 3=b, 4=c

d) 1 =c, 2=d, 3=a, 4=b

Correct Answer - C

**Ans. c. 1 =d, 2=a, 3=b, 4=c**

Geneva Ethics

2. Tokyo Torture

3. Oslo Abortion

4. Helsinki Human experimentation

Declaration of Geneva  
(1948)

Modernized version of Hippocratic  
oath°

Declaration of London  
(1949)

International code of medical ethics

Declaration of Helsinki  
(1964)

Human experimentation & clinical  
trials°

Declaration of Sydney  
(1968)

Definition of death & recovery of  
organs

Declaration of Oslo (1970)

Therapeutic (legalized) abortion

Declaration of Munich

Discrimination in medicine

Discrimination in medicine

(1973)

Declaration of Tokyo (1975) Torture & medicine°

Declaration of Lisbon (1981) Rights of patients

Declaration of Venice (1983) Terminal illness

Declaration of Malta (1992) Role of doctors in hunger strikes

Declaration of Istanbul (2008) Organ trafficking & transplant tourism

## 108. Match the following:

- |              |                |
|--------------|----------------|
| 1. Cocaine   | a. Human hand  |
| 2. LSD       | b. White lady  |
| 3. Abrus     | c. Purple haze |
| 4. Capsaicin | d. Gunchi      |

a) 1 =a, 2=b, 3=c, 4=d

b) 1 =b, 2=c, 3=d, 4=a

c) 1 =d, 2=a, 3=b, 4=c

d) 1 =c, 2=d, 3=a, 4=b

Correct Answer - B

**Ans. b. 1 =b, 2=c, 3=d, 4=a**

- |              |             |
|--------------|-------------|
| 1. Cocaine   | White lady  |
| 2. LSD       | Purple haze |
| 3. Abrus     | Gunchi      |
| 4. Capsaicin | Human hand  |

## 109. St. Anthony's fire refers to poisoning by:

a) Ergot alkaloids

b) Spanish fly

c) *Crotalaria juncea*

d) Aflatoxin

Correct Answer - A

**Ans: A. Ergot alkaloids**

(Ref Reddy 34/e p517. 33/e p556: Parikh 6/e p9.32)

**St. Anthony's Fire:**

**Causes:**

- Due to overdose of ,
- Ergot medications.
- After eating flour milled from ergot-infected rye.
- Humans & livestock à Develop ergotism.

**Ergotism:**

- Long term effect of ergot poisoning.
- Due to alkaloids ingestion produced by *Claviceps purpurea* fungus infected rye & other cereals.
- Also due to a action of number of ergoline-based drugs.
- Also known as “ergototoxicosis, ergot poisoning & Saint Anthony's Fire”.
- In middle age -
- **Gangrenous poisoning was known as "holy fire" or "Saint Anthony's fire”.**
- Named after monks of Order of Saint Anthony who succeeded in treatment.

**110. A 19 years old patient presented to the emergency with altered sensorium. A noncontrast CT revealed hydrocephalus, requiring urgent neurosurgical intervention. The patient had nobody accompanying or any identity proof. Under which of these sections of Indian Penal Code (IPC) can the neurosurgeon perform the procedure without obtaining an informed consent from a guardian?**

a) Section 87

b) Section 89

c) Section 90

d) Section 92

Correct Answer - D

**Ans: D. Section 92**

**Explanation:**

(Ref Reddy 34/e p51, 33/e p51; Parikh 6/e p1.36)

- Under Sections 92 of Indian Penal Code (IPC) - Neurosurgeon can perform procedure without obtaining an informed consent from guardian.
- **Laws Related to Consent**
- **Section 92 IPC:**
- Any harm caused to a person in good faith even without the person's consent is not an offence if the circumstances were such that it was

impossible to obtain consent of the person or his lawful guardian at that material time for that thing to be done for the benefit of the person.

- However the act should not extend to intentionally causing hurt other than for preventing death, grievous hurt or curing of disease or infirmity.

**Exceptions to the Informed Consent:**

**Doctrine of Emergency:**

- Under Section 92 of IPC, treating without consent of patient is permissible if patient is unconscious, mentally ill or gravely sick & no attendant with the patient.
- It is implied that the procedure/surgery is done to save the life or limb of the patient.
- If possible, surrogate/proxy consent should be taken.

**111.**

**A doctor used the same needle used in a patient with HIV to inject in another patient. The latter patient on testing found to be infected with HIV. The doctor is punishable for this negligence according to which section of Indian penal code?**

a) Section 166B

b) Section 202

c) Section 203

d) Section 269

Correct Answer - D

**Ans: D. Section 269**

(Ref Reddy 34/e p53, 33/e p44; Parikh 6/e p1.10; Textbook on the Indian Penal Code by Krishna Deo Gaut- 4th/594; the-indian-penal-code-pdf-d74214920)

- The doctor here has done a negligent act, which has caused HIV to a patient.
  - This is punishable under Section 269 of IPC.
- IPC codes:**
- 269 IPC = Negligent act likely to spread infection or disease dangerous to life.
  - 270 IPC = Malignant act likely to spread infection or disease dangerous to life.

**112. A 38 years old female presented to the emergency with extensive burns. The patient had grade 3 burns on the face, back, upper arms and forearms along with singeing of hairs. Which of the following is not a proof of inhalation burns?**

a) Yellow colored sputum

b) Blackish soot deposit on posterior part of tongue

c) Hoarseness & stridor of voice

d) Singeing of eyebrows and facial hair

Correct Answer - A

**Ans: A. Yellow colored sputum**

(Ref Reddy 33/e p325-326: Parikh 6/e p4. /60)

- Yellow sputum/ phlegm = Mostly a sign of bacterial infection.
- In burns takes time to develop.
- **Grade 3 burns:**
  - Sputum with carbonaceous colored.
  - Singeing of facial hair, burns on face, soot marks & singed eyebrows or facial hair - Indicative of acute burns inhalational injury.
- **Features of inhalation injury:**
  - **Characteristic:**
    - History of fire in an enclosed space.
    - Burns of face.
    - Singed nasal & facial hair.
    - Inflamed pharyngeal mucosa.

- Carbonaceous sputum.
- Evidence of edematous glottis (e.g., hoarseness).

**113. All of the following are suggestive of domestic violence in a child except:**

a) Wormian bones

b) Microfractures in the sub-epiphyseal region

c) Corner fractures

d) Bucket handle fractures of metaphyses

Correct Answer - A

**Ans: A. Wormian bones**

(Ref: Reddy 34/e p417; Parikh 6/e p4. 187).

- Wormian bones are seen in Osteogenesis imperfecta and not child abuse.
  - **Wormian bones**, also known as **intrasutural bones** or **sutural bones**,<sup>[1]</sup> are extra bone pieces that can occur within a suture (joint) in the skull. These are irregular isolated bones that can appear in addition to the usual centres of ossification of the skull and, although unusual, are not rare
- 'Battered baby' syndrome:**
- Suspected due to severe & varied changes in metaphyses, periosteal new bone formation or epiphyseal separation.
  - Also referred as "Caffey's Syndrome/Infantile Whiplash Syndrome".
- Injuries Type & Pattern:**
- Arms & legs:**
- Move about in a whiplash movement resulting in typical 'corner' or 'bucket-handle'-fractures in metaphyseal region.
  - Classical metaphyseal corner or bucket handle fracture" - Virtually pathognomonic for abuse.
  - Fractures of acromion, sternum & spinous processes - High specificity for abuse.



**114. An abandoned dead male fetus was found and bought by police for autopsy. The following was the report "The head to feet length is 63 cm, eyes are open, pupillary membrane is absent, Crown Rump Length is 23 cm, testes are at the superficial inguinal ring and weight of the fetus is 1000 gm." What is the estimated age of the fetus?**

a) 5 months

b) 6 months

c) 7 months

d) 8 months

Correct Answer - C

**Ans: C. 7 months**

(Ref: Reddy 34/e 1)81, 33/e p84: Parikh 6/e p5.67: Modi 22/e p602)

- Estimated fetus age - 7 months.
- Papillary membrane disappears at 7 months.
- Testes reach level of superficial inguinal ring at 7 months.
- At 7 months, weight is 900-1200 gm.

**115. Correctly match the following:**

**Declaration**

**1. Declaration of Geneva health**

**2. Declaration of Helsinki Hippocratic oath**

**3. Declaration of Tokyo Ethics**

**4. Declaration of Oslo practices and torture**

**Motive**

**i. Global**

**ii.**

**iii. Medical**

**iv. Inhuman**

a) 2-ii, 3-iv, 4-i

b) 1-ii, 2-iii, 3-iv, 4-i

c) 1-iv, 2-i, 3- 4-iii

d) 1-ii, 2-iv, 3-iii, 4-i

Correct Answer - B

**Ans: B. 1-ii, 2-iii, 3-iv, 4-i**

Declaration of Geneva (1948)

Modernized version of Hippocratic oath°

Declaration of London (1949)

International code of medical ethics

Declaration of Helsinki (1964)

Human experimentation & clinical trials()

Declaration of Sydney (1968)

Definition of death & recovery of organs

Declaration of Oslo

Therapeutic (legalized)

Declaration of Cairo (1970)	Therapeutic (regulated) abortifacients
Declaration of Munich (1973)	Discrimination in medicine
Declaration of Tokyo (1975)	Torture & medicine
Declaration of Lisbon (1981)	Rights of patients
Declaration of Venice (1983)	Terminal illness
Declaration of Malta (1992)	Role of doctors in hunger strikes
Declaration of Istanbul (2008)	Organ trafficking & transplant tourism

**116. A farmer ingested some unknown poisonous seeds and had pain and vomiting. Soon he developed paralysis of his lower limbs, which ascends till it affected the respiratory muscles and he died within two days. Identify the likely cause:**

a) Abrus precatorium

b) Solanum lycopersicum

c) Conium maculatum

d) Strychnine nux vomica

Correct Answer - C

**Ans: C. Conium maculatum**

(Ref Reddy 34/c7371, 33/e p614; Parikh 6/e p10.57-10.60)

- Typical ascending paralysis as described in the question is seen in.
- **Conium Maculatum:**
- Odour of dried leaves is strong & narcotic.
- **Conium or hemlock poisoning:**
- Ingestion causes burning in mouth & throat.
- Gastric inflammation.
- Vomiting
- Diarrhea
- Slow respiration.
- Increased & later slow pulse.
- Mental confusion, tremors, ataxia.
- Blindness.

- Progressive motor paralysis - Extending upwards from extremities.
- Coma & death from respiratory paralysis.

**117. A lady was brought from village, unconscious, about 12 hours after ingesting some kind of unknown poison. Her heart rate was 103/min, blood pressure in 90/50 mm Hg and respiratory rate is 19/min. Her breath smelled like kerosene. All of the following should be done in her management, except:**

a) Gastric lavage should be done

b) Atropine should be administered till signs of recovery

c) Vasopressors should be administered intravenously

d) Immediate airway management

Correct Answer - C

**Ans: C. Vasopressors should be administered intravenously**  
(Ref Reddy 34/e p487, 33/e p; Parikh 6/e p10.41-10.45).

- **Signs & symptoms suggestive of organophosphorus poisoning.**
- **Antidote of choice – Atropine.**
  - Reverts bradycardia & hypotension.
- **Vasopressors contraindicated - Due to cholinergic effect combated by atropine.**

**118. All of these stains are used in tattooing except:**

a) Osmium blue

b) Prussian blue

c) Vermillion

d) India ink

Correct Answer - A

**Ans: A. Osmium blue**

(Ref Reddy 34/e 1,89, 33/e p92).

**Osmium blue:**

- Not used for tattooing.

**Tattoo marks:**

- Design made in skin by multiple puncture wounds with needles or an electric vibrator dipped in colouring matter.

**Commonly used dyes:**

- Indian ink, carbon (black), cinnabar or vermilion (mercuric sulphide) red, chromic acid (green), indigo, cobalt, Prussian blue (ferric ferrocyanide), ultramarine (blue).

**Osmium tetroxide:**

- Used in optical microscopy.
- Stains lipids.
- Dissolves in fats & reduced by organic materials to elemental osmium.
- Osmium - An easily visible black substance.

**119. In an examination of a victim of sexual assault, toluidine blue dye test is done to identify:**

a) Healed microinjuries

b) Dried seminal stains

c) Recent microinjuries

d) Clotted blood

Correct Answer - C

**Ans: C. Recent microinjuries**

(Ref: Parikh 6le p5.36; Forensic Emergency Medicine by Jonathan S. Olshake PR 100).

- In examination (If a victim of sexual assault, toluidine blue dye test is done to identify recent micro injuries.

**Examination of a victim of sexual assault**

Wet mount evaluation for motile sperm°

Alternative light source°

Toluidine blue dye test°

Anoscopy°

Colposcopy°

**120. Fingerprinting (FINDER) involves recording prints of 8 fingers. Which finger pair is excluded?**

a) Ring finger

b) Thumb

c) Little finger

d) Middle finger

Correct Answer - C

**Ans: C. Little finger**

(Ref: Reddy 34le p84, 33le p87; Parikh 6le p2.15).

**Fingerprint reader (FINDER):**

- Computerized automatic fingerprint reading system which can record each fingerprint data in half second. Prints of eight fingers are recorded excluding little fingers.
- The light reflected from a fingerprint can be measured and converted to digital data which is classified, codified and stored in the computer.

## 121. In assessing infant deaths, Ploucquet's test involves:

a) Change in specific gravity of lungs

b) Presence of air in stomach and duodenum

c) Change in partial weight of lungs

d) Air in middle ear

Correct Answer - C

**Ans: C. Change in partial weight of lungs**

(Ref: Reddy 34/e p411, 33/e p439).

- In assessing infant deaths, Ploucquet's test involves change in partial weight of lungs.  
**Ploucquet's test:**
- The blood flow in the lung beds is so increased after breathing that their weight is almost doubled from 1/70 of the body weight before respiration to 1/35 after respiration.
- This increase in weight is not constant and is not a reliable indication of breathing.

**122. After a building collapse, among remnants, a person's length of humerus is 24.5 cm. What is the predicted height of this person?**

a) 90 cm

b) 110 cm

c) 130 cm

d) 146 cm

Correct Answer - C

**Ans: C. 130 cm**

(Ref Parikh 6/e p2.75, 12.2).

- In general, humerus represents 20%, Tibia 22%, Femur 27% and Spine 34% of the stature.
- Multiplication factor for humerus is 5.31 for calculation of stature.
- In the question, length of femur is 24.5 cm.
- Hence, predicted height =  $5.31 \times 24.5 = 130$  cm.

**123. Which of the following principles governs biomedical research in human subjects?**

a) Geneva declaration

b) Helsinki declaration

c) Hippocratic oath

d) International code of medical ethics

Correct Answer - B

**Ans: B. Helsinki declaration**

(Ref: Reddy 34/e p600, 33/e p26, 400, 647; Parikh 6/e p1.26)

- Helsinki declaration governs biomedical research in human subjects.
- The declaration of Helsinki is a set of ethical principles regarding human experimentation developed for the medical community by the World Medical Association.
- It is widely regarded as the cornerstone document on human research ethics.

**124. According to Transplantation of Human Organs Act, which of the following doctors is/are not authorized to declare brainstem death?**

a) RMP incharge of the hospital

b) Treating physician

c) Neurosurgeon

d) Surgeon doing liver transplant

Correct Answer - D

**Ans: D. Surgeon doing liver transplant**

(Ref: <http://mohfw.gov.in/showfile.php?lid=2606>; Transplantation of Human Organs and Tissue Rules)

- In the case of brain-stem death of the donor, a certificate has been signed by all the members of the Board of medical experts; Where a neurologist or a neurosurgeon is not available, an anesthetist or intensivist nominated by the Registered Medical Practitioner and who is not member of the transplantation team for the recipient concerned, may certify the brain stem death as a member of the Board.
- Because of vested interest, surgeon doing liver transplant cannot declare a person brain dead.

**125. The following system of depiction of 32 teeth is in accordance with which system?**

**Permanent Teeth**

Upper Right	Upper Left
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17	
Lower Right	Lower Left

a) Universal system

b) Palmer's system

c) Haderup system

d) Diagrammatic depiction

Correct Answer - A

**Ans: A. Universal system**

(Ref: Reddy 341e p96-97, 33/e p99-100).

- The given system of depiction of the 32 teeth is in accordance with Universal system.
- **Universal system:**
- Teeth are numbered 1 to 16 from upper right to upper left, and 17 to 32 from lower left to lower right.
- This follows the plan advocated by American and International Society of Forensic Odontology.

**126. An adult came to casualty with complaints of rapid heart rate. On examination everything else was normal except for episodic tachycardia and occasional extra-systole and amblyopia. Which of the following is the cause of it?**

a) Nicotine

b) Cannabis

c) Atropine

d) Cocaine

Correct Answer - A

Answer- A. Nicotine

- Nicotine chronic poisoning can lead to cough, wheezing, dyspnoea, anorexia, vomiting, diarrhea, anaemia, faintness,
- tremors, impaired memory, amblyopia, blindness, irregularities, of the heart with extra-systoles and occasionally attacks pain suggesting angina pectoris.

**127. A 70 years old male patient presents with amblyopia, exertional chest pain, episodic tachycardia and extra systoles on FCC. What is the probable cause?**

a) Cocaine poisoning

b) Chronic nicotine poisoning

c) Arsenophagia

d) Cannabis ingestion

Correct Answer - B

Answer- B. Chronic nicotine poisoning

- Symptoms of chronic nicotine poisoning are cough, wheezing, dyspnoea, anorexia, vomiting, diarrhea, anemia, faintness,
- tremors, impaired memory, amblyopia, blindness, irregularity of the heart with extra-systoles and occasionally attacks pain suggesting angina pectoris

## 128. Keeping in Jack-knife position for long leads to death by:

a) Wedging

b) Burking

c) Positional asphyxia

d) Traumatic asphyxia

Correct Answer - C

Answer- C. Positional asphyxia

- Keeping in Jack-knife position for long leads to death by positional asphyxia.  
"Postural or Positional Asphyxia":
- Occasionally, it results from indirect compression, when the body is subjected to force in such a manner that his thighs and the knees are driven against his chest, the so-called "Jack-Knife" position.
- There is usually marked congestion, cyanosis, and petechiae in the face and neck.
- This occurs when the individual acquires a certain body position in which breathing is impaired, often because of neck twisting with kinking or compression of trachea and/or elevation of the tongue into the posterior hypopharynx. Normal venous return to the heart may be impaired.
- The body is typically inverted (upside-down) & weight of abdominal contents press against the diaphragm pushing it upwards, thus compressing the thoracic organs, which combined with decreased respiratory movements, leads to cardiorespiratory failure & death.
- It is always accidental

**129. Which of the following is not true regarding teeth features and ethnicity?**

a) Upper third molar is most commonly absent in Mongolians

b) Carabelli cusps are seen in Caucasians

c) Negros have wide molar cusps and deep, shovel shaped cusps in incisors

d) Prominent lingual ridge and labial ridge is seen in Mongolians

Correct Answer - C

Answer- C. Negros have wide molar cusps and deep, shovel-shaped cusps in incisors

- The presence of shovel-shaped incision is a feature of Mongolians, and it is uncommon in Negros.
- A congenital lack of the third upper molar is most common in Mongolians but can occur in any race.
- Small nodules on the lingual surface of maxillary molars, called 'Carabelli's cusp', are most common in Caucasian races and rare in the other major racial groups.
- Negroid races tend to have large teeth and often have more cusps on their molars, even up to eight, with two lingual cusps on the mandibular first premolars as an additional common finding.

**130. A young patient presented to casualty with a history of some substance abuse. His pulse was 130 beats per minute and respiratory rate was 30 per minute. Blood gas analysis revealed metabolic acidosis and his urea was 100 mg/dL and creatinine was 4 mg/dL. Urinalysis revealed calcium oxalate crystals. He improved symptomatically after management with intravenous fluids, gastric lavage, sodium bicarbonate, calcium gluconate and 4-methylpyrazole administration. What is the most likely substance that he consumed?**

a) Formaldehyde

b) Methyl alcohol

c) Ethylene glycol

d) Paraldehyde

Correct Answer - C

Answer- C. Ethylene glycol

- Initial symptoms are vomiting lethargy, ataxia, inebriation, convulsions, and coma.
- In 12 to 24 hours tachycardia, tachypnoea and circulatory collapse,

electrolyte imbalance and metabolic acidosis occur. In one to three days hypocalcemia, oliguria, tubular necrosis, and renal failure occur.

- Urine contains crystals of calcium oxalate.  
Ethylene glycol: Clear, colorless, odorless, non-volatile liquid with a bitter-sweet taste.
- Mainly used as an antifreeze agent; Not absorbed through the skin.
- Metabolized to glycolaldehyde, glycolic acid & oxalic acid and inhibits oxidative phosphorylation
- Fatal dose: 100-200 ml; Fatal period: 3 days

**131. Which of the following is correct regarding corpo-robasal index of sacrum?**

a) Breadth of 1st sacral vertebra x 100/breadth of 5th lumbar vertebra

b) Breadth of 5th lumbar vertebra x 100/breadth of all sacral vertebra

c) Breadth of 5th lumbar vertebra x 100/breadth of base of sacrum

d) Breadth of 1st sacral vertebra x 100/breadth of base of sacrum

Correct Answer - D

Answer- D. Breadth of 1st sacral vertebra x 100/breadth of base of sacrum

- Corporobasal index is a sex-differentiating index used for sacrum.

**132. A 16-year-old girl comes to a doctor with fractured forearm. She told she tripped and fell but cigarette burns were observed on her forearm. What will be your Next step?**

a) To inform higher authorities

b) To do a complete physical examination

c) To tell or discuss with colleagues that she is a case of abuse

d) To call local social worker for help

Correct Answer - B

Ans: B. To do a complete physical examination

- The first step after suspecting a case of abuse is to do a complete detailed history taking & physical examination of the patient to see any other injuries which can confirm the findings.
- Concluding just by seeing a burn that looks like a cigarette burn on the forearm can be misleading at times so a thorough examination of the whole body is mandatory to confirm the above finding to child abuse.
- after confirmation According to the POSCO Act, every crime of child sexual abuse should be reported. If a person who has information about any abuse fails to report, they may face imprisonment up to six months or maybe fined or both

### 133. "First hand knowledge" refers to

a) Opinion of a doctor in court

b) Handwriting expert

c) Common witness

d) Fingerprint expert

Correct Answer - C

Ans: C. Common witness

- "Except **common witness** all other options are expert witnesses".
- Only the common witness can be considered as having first-hand knowledge in the court of law.
- In the court procedures, this phrase refers to the personal understanding of circumstances and events, which is re-told and explained by a witness in a courtroom, during a court hearing on the concrete lawsuit.
- In other words, the witness has been an eye-witness of these circumstances or events and so has accepted directly. Therefore they have clear and detailed personal knowledge of it. An example is a statement in affidavits.

## 134. Match the following columns

- |                |                   |
|----------------|-------------------|
| A. Heroin      | 1. Gunchi         |
| B. Spanish fly | 2. Blister beetle |
| C. Abrus       | 3. Blue rocket    |
| D. Aconite     | 4. Brown sugar    |

a) A-1 B-2 C-3 D-4

b) A-4 B-2 C-1 D-3

c) A-4 B-2 C-3 D-1

d) A-3 B-4 C-2 D-1

Correct Answer - B

Ans: B. A-4 B-2 C-1 D-3

### **Cantharides (Spanish Fly)**

- Active principle: Cantharidin
- Local application on skin: Vesicle or blister formation

### **On ingestion:**

- Burning sensation, intense thirst, Blood Stained vomiting and diarrhea, Loin pain and nephrotoxicity, Frank blood in the urine, Strangury, Priapism

### **Opium/Afim**

- Opium (poppy) is derived from *Papaver somniferum*. Toxic part: Unripe fruit capsule, latex juice.
- Speedball is the use of cocaine with morphine or heroin

### 135. Poisoning by which of these elements causes blind staggers alkali disease in livestock?

a) Magnesium

b) Manganese

c) Selenium

d) Molybdenum

Correct Answer - C

Ans: C. Selenium

- **Blind staggers** are no longer believed to be caused by selenium but by sulfate toxicity due to the consumption of high-sulfate **alkali** water and/or high sulfur-containing forages.
- Since Sulfate is not mentioned in Question we will go for selenium.
- Excess sulfate (>1% of diet) leads to polioencephalomalacia and the classical signs of **blind staggers**.

#### **Blind Staggers**

- This syndrome may occur within a brief period (a few days to a few weeks) after the animal has begun to take in very high dietary levels of selenium. The symptoms of this condition are: impaired vision, a depressed appetite, and wandering in circles

**Prolonged oral exposure of cattle to elevated dietary selenium (Se) is associated historically with 2 clinical syndromes:**

- Alkali disease.
- "Blind staggers".

These two syndromes are not necessarily independent of one another. An animal may have only symptoms of one or the other or a combination of the symptoms of both. Both are associated with cardiac and skeletal muscle damage as well as hepatic damage.

cardiac and skeletal muscle damage as well as hepatic damage.

### 136. All are true about Doctrine of borrowed servant except?

a) Hospital administration is responsible for the actions of interns and trainees

b) A nurse assisting a surgery is a borrowed servant of the hospital

c) Doctor assisting a surgeon for fee in OT

d) Physician is responsible for the acts of the orderlies and nursing staff done by his orders

Correct Answer - C

Ans: C. Doctor assisting a surgeon for fee in OT

- **Borrowed servant doctrine:**
- The common law principle that the employer of a borrowed employee' rather than the employee's regular employer is liable for employees actions that occur while the employee is under the control of the temporary employer.
- Sometimes referred to as borrowed employee doctrine.

**137. Calculate the Age of fetus having CRL 23 cm, foot length 7 cm. Talus is present and testes are present at superficial inguinal ring?**

a) 5 months

b) 6 months

c) 7 months

d) 8 months

Correct Answer - C

Ans: C. 7 months

- Gestational age can be determined from maturation of chorionic villi; foot length and ossification centres.

**Seventh month:**

- Length 35 cm; crown-rump length 23 cm; foot length 8 cm; weight 900 to 1200 g.
- Nails are thick.
- Eyelids open and pupillary membrane disappears.
- Skin is dusky-red, thick and fibrous.
- Meconium is found in the entire large intestine.
- Testes are found at external inguinal ring.
- Gallbladder contains bile and caecum is seen in the right iliac fossa.
- Ossification centre is present in the talus.

**138. All are the features present in male skull as compared to female skull except**

a) Larger teeth

b) Larger foramen

c) Larger frontal sinuses

d) Larger fronta eminence

Correct Answer - D

Ans: D. Larger fronta eminence

Feature	Male	Female
Architecture	Rugged	Smooth
Frontal eminence	Small	Large°
Parietal eminence	Small	Large°
Orbits	Square° with smooth margin	Rounded with sharp margin
Fore head	Steeper°	Vertical
Palate	Large, broader and U shaped	Smaller and parabola
Occipital condyle	Large	Small
Glabella	More pronounced°	Less pronounced
Fronto-nasal junction	Distinct and angulated	Smooth
Supraorbital ridges	Prominent°	Less prominent

Diagastric groove	More deep	Less deep
Mastoid process	Large and blunt	Small and pointed
Zygomatic arch	More prominent	Less prominent
Occipital protuberance	Well marked	Less marked

### 139. All are true about Doctrine of borrowed servant except?

a) Hospital administration is responsible for the actions of interns and trainees

b) A nurse assisting a surgery is a borrowed servant of the hospital

c) Doctor assisting a surgeon for fee in OT

d) Physician is responsible for the acts of the orderlies and nursing staff done by his orders

Correct Answer - C

**Ans. C. Doctor assisting a surgeon for fee in OT**

**Borrowed servant doctrine:**

- The common law principle that the employer of a borrowed employee' rather than the employee's regular employer is liable for employees actions that occur while the employee is under the control of the temporary employer.
- Sometimes referred to as borrowed employee doctrine.

**140. In the sequence in following clauses,  
which of the following is incorrect:**

a) Second → Permanent privation of the sight of either eye

b) First → Emasculation

c) Eight → Fracture or dislocation of a bone or tooth

d) sixth → Permanent disfiguration of the head or face

Correct Answer - C

**Answer- C-Fracture or dislocation of a bone or tooth is the seventh clause of grievous hurt**

**Sec-320 → following kinds of hurt only are designated as "grievous":-**

- Firstly.-Emasculation
- Secondly.-Permanent privation of the sight of either eye.
- Thirdly.-Permanent privation of the hearing of either ear.
- Fourthly.-Privation of any member or joint.
- Fifthly.-Destruction or permanent impairing of the powers of any member or joint.
- Sixthly.-Permanent disfiguration of the head or face.
- Seventhly.-Fracture or dislocation of a bone or tooth.
- Eighthly.-Any hurt which endangers life or which causes the sufferer to be during the space of twenty days in severe bodily pain, or unable to follow his ordinary pursuits

## 141. Paradoxical undressing seen in -

a) Immersion syndrome

b) Heat cramps

c) Hypothermia

d) Heat exhaustion

Correct Answer - C

**Ans- c- hypothermia**

- **Paradoxical undressing** is a term for a phenomenon frequently seen in cases of lethal hypothermia. Shortly before death, the person will remove all their clothes, as if they were burning up, when in fact they are freezing.

## 142. Max damage is done by which Poison?

a) Irritant poison

b) Corrosive poison

c) Alcohol

d) Opioid

Correct Answer - B

**Ans. is'b'i.e., Corrosive poison**

- Corrosives fix, destroy and erode the surface with which they come in contact. Thus, they cause extensive tissue damage.
- Irritants produce less severe damage than corrosives and produces 'symptoms simulating gastroenteritis'

**143. In post mortem body traumatic injury of face with one eye missing and some injury on mouth and nose ( right eye ball was missing , blood in socket area )**



**Cause of injury**

a) Blunt rupture to eyeball

b) Evisceration by sharp weapon

c) Post mortem artefact

d) None of the Above

Correct Answer - B

**Answer B. Evisceration by sharp weapon**

- In blunt rupture of eye the complete eye will not be missing. Also since the blood is present in the socket so post mortem artifact is ruled out.
- Evisceration by Sharp object the eye ball will be completely missing. Some injury to mouth or nose can be due to trauma in those areas.

**144. Girl child feels isolated and cries alone intermittently in school. Teacher gets to know that uncle at home touches private parts of the child. The principal should inform first to:**

a) Parents

b) Police

c) Magistrate

d) Child welfare

Correct Answer - B

**Answer-B- Police**

\* ACC to POSCO Act casts a legal duty upon a person who has knowledge that a child has been sexually abused to report the offence; if he fails to do so, he may be punished with six months? imprisonment and/ or a fine.

\* The police are also required to bring the matter to the attention of the Child Welfare Committee (CWC) within 24 hours of receiving the report, so the CWC may then proceed where required to make further arrangements for the safety and security of the child.

**145. A Patient is admitted with Insomnia, Agitation, Diarrhoea, Dilated pupils and Sweating, what is the type of poisoning?**

a) Heroin

b) Cocaine

c) Cannabis

d) Ecstasy

Correct Answer - A

**Ans. A. Heroin**

- \* Insomnia, Agitation, Diarrhea and Altered sensorium
- \* There may be white froth from mouth, in PM examination
- \* Methadone is the drug of Choice

**146. A patient with Suspected Poisoning with meiosis, Increased Bronchial Secretions & salivation from Angle of mouth. What type of Antidote is to be Given.**

a) Atropine

b) EDTA

c) Neostigmine

d) Belladonna

Correct Answer - A

**Answer-A. Atropine**

\* Atropine is a medication used to treat certain types of nerve agent and pesticide poisonings as well as some types of slow heart rate and to decrease saliva production.