# Bihar Staff Nurse Sample Paper

**Q1.** What is the purpose of hormonal therapy in breast cancer?
(a) To destroy cancer cells directly
(b) To block estrogen effects
(c) To stimulate tumor growth
(d) To increase white blood cell count

**Q2.** National Tobacco Control Program launched by Government of India in?
(a) 2013–14
(b) 2008–09
(c) 2010–11
(d) 2007–08

**Q3.** Statue of Unity is situated in which state–
(a) West Bengal
(b) Gujarat
(c) Delhi
(d) Madhya Pradesh

**Q4.** What is the primary cause of Tracheoesophageal Fistula (TEF) in infants?
(a) Incomplete fusion of the trachea and esophagus
(b) Incomplete closure of the stomach and intestines
(c) Genetic mutation of the esophageal tissue
(d) Defective development of the respiratory system

**Q6.** Which type of Tracheoesophageal Fistula (TEF) involves the upper part of the esophagus being blind and not connected to the stomach?
(a) Type A
(b) Type B
(c) Type C
(d) Type D

**Q3.** What is the recommended first-line imaging study to evaluate an ovarian cyst?
(a) MRI abdomen
(b) Pelvic ultrasound
(c) Chest X-ray
(d) Intravenous pyelogram (IVP)

**Q7.** Which type of ovarian cyst is associated with endometriosis?
(a) Dermoid cyst
(b) Corpus luteum cyst
(c) Endometrioma
(d) Follicular cyst

**Q8.** What is the most common type of fetal lie observed during pregnancy?
(a) Oblique lie
(b) Vertical or longitudinal lie
(c) Shoulder lie
(d) Transverse lie

**Q9.** What does the term "lie" refer to in obstetrics?
(a) The presenting part of the fetus
(b) The relation of the fetal head to the maternal pelvis
(c) The relationship of the long axis of fetus to the long axis of mother
(d) The attitude of fetal limbs

**Q10.** Which of the following is the primary purpose of documentation during the implementation phase of the nursing process?
(a) To track patient progress and evaluate outcomes
(b) To communicate the plan of care to other healthcare professionals
(c) To ensure that the patient follows the prescribed treatment plan
(d) To justify the nurse's actions and interventions

**Q11.** Identify the next number in the sequence: 1, 2, 4, 7, 11, ____
(a) 14
(b) 16
(c) 12
(d) 10

**Q12.** How many students in the class do not have a mobile phone?
1) 30 students have a mobile phone in the classroom.
2) There are a total of 50 students in the classroom.
(a) Data in both the statements I and II is not sufficient to answer the question.
(b) Data in statement I alone is sufficient to answer the question.
(c) Data in statement II alone is sufficient to answer the question.
(d) The data given in both statements I and II together are necessary.

**Q13.** If 'A # B' means 'A is the brother of B';
'A @ B' means 'A is the sister of B';
'A % B' means 'A is the wife of B';
'A & B' means 'A is the husband of B';
Then in the statement:
J * K # L & M % N @ O
What is the relation of K to O?
(a) Maternal Aunt (Mausi)
(b) Aunt (Chachi)
(c) Sister-in-law (Bhabhi)
(d) Maternal Uncle (Mama)

**Q14.** _____ used in a computer has a switching regulator to convert electrical power efficiently.
(a) HDD
(b) ROM
(c) USB
(d) SMPS

**Q15.** Four letter sets are given. Three are alike in some way, and one is different. Find the odd one out.
(a) GKIM
(b) FJHL
(c) PTRV
(d) CHEJ

**Q16.** Which of the following conditions weakens the immune system, increasing the risk of stomatitis?
(a) Stress
(b) Autoimmune disorders
(c) Viral infections like HIV
(d) All of the above

**Q17.** Eclampsia is best defined as:
(a) High blood pressure in pregnancy
(b) Proteinuria in pregnancy
(c) Seizures in a woman with preeclampsia
(d) Edema in pregnancy

**Q18.** Which of the following is the first particle discovered which is believed to be elementary, that is, not made up of further constituents?
(a) Glucon
(b) Photon
(c) Electron
(d) Proton

**Q19.** The average age of 19 students is 31 years. Later, it was found that the ages of 14, 24, and 31 were wrongly recorded as 41, 42, and 43 respectively. What is the correct average age?
(a) 27
(b) 30
(c) 29
(d) 28

**Q20.** What is a common risk associated with teenage pregnancy?
(a) Increased risk of high blood pressure
(b) Increased risk of preterm birth
(c) Decreased risk of gestational diabetes
(d) Improved fetal growth

**Q21.** Which of the following is NOT a macronutrient?
(a) Proteins
(b) Fats
(c) Vitamins
(d) Carbohydrates

**Q22.** Which of the following is a water-soluble vitamin?
(a) Vitamin A
(b) Vitamin C
(c) Vitamin D
(d) Vitamin E

**Q23.** Which of the following drugs is obtained from a plant source?
(a) Heparin
(b) Digoxin
(c) Insulin
(d) Streptomycin

**Q24.** What is a common feature of a healthy child?
(a) Lethargy
(b) Alertness and liveliness
(c) Poor physical activity
(d) Frequent illnesses

**Q25.** What is the scientific study of human population called?
(a) Sociology
(b) Anthropology
(c) Demography
(d) Geography

**Q26.** Four sets of letters are given. Three of them are alike in some way, while one is different. Find the odd one out.
(a) HI OP
(b) SVXY
(c) KNPO
(d) RUWX

**Q27.** Operating systems and other programs typically access a hardware device through a _____ which provides a software interface to the device.
(a) Macro assembler
(b) Device driver
(c) Dynamic linker
(d) Compiler

**Q28.** Which of the following space agencies is building the Super Heavy Launch Vehicle?
(a) ESA
(b) NASA
(c) Roscosmos
(d) ISRO

**Q29.** A bullet train is traveling at a speed of 131 km/h.
How many seconds will it take to cover a distance of 9.8 km?
(a) 75 seconds
(b) 90 seconds
(c) 105 seconds
(d) 120 seconds

**Q30.** P1 and P2 are traveling from Pune to Mumbai in their respective cars.
- P1 is traveling at a speed of 80 km/h.
- P2 is traveling at a speed of 60 km/h.

If P1 takes 9 hours to complete the journey, how much time will P2 take for the same journey?
(a) 20 hours
(b) 12 hours
(c) 14 hours
(d) 16 hours

**Q31.** Which of the following statements is incorrect?
(a) Polluted water or wastewater can be reused after proper treatment
(b) Radioactive substances emit harmful rays during nuclear reactions
(c) Artificial satellites are located in the thermosphere
(d) Most commercial aircraft fly in the thermosphere

**Q32.** The distance between two temples, T1 and T2, is 120 km.
- One jeep travels from T1 to T2 at an average speed of 20 km/h.
- Another jeep starts 10 minutes later and travels from T2 to T1 at an average speed of 30 km/h.

Question: At what distance from T1 and T2 will the two jeeps meet?
(a) 51.78 km and 98.22 km
(b) 54.60 km and 95.47 km
(c) 41.81 km and 78.19 km
(d) 45.16 km and 74.84 km

**Q33.** What number should replace the question mark in the following sequence?
12, 6, 6, 9, 18, ?
(a) 36
(b) 30
(c) 48
(d) 45

**Q34.** 'Green-Blue' infrastructure policy has been proposed by which state/UT government?
(a) Tamil Nadu
(b) Uttar Pradesh
(c) Delhi
(d) Karnataka

**Q35.** In India, health care is included under which list of the Seventh Schedule of the Constitution of India?
(a) Union List
(b) Concurrent List
(c) State List
(d) Residuary List

**Q36.** What should come at the end in the following number series?
0, 2, 10, 30, 68, ?
(a) 125
(b) 130
(c) 135
(d) 140

**Q37.** What should come in place of the question mark (?) in the following question:
(72÷6) of (15−3)=?(72 \div 6) \, \text{of} \, (15 - 3) = ?(72÷6)of(15−3)=?
(a) 156
(b) 72
(c) 144
(d) 196

**Q38.** The headquarters of RBI is in which city?
(a) Delhi
(b) Kanpur
(c) Mumbai
(d) None of the above

**Q39.** Select the related number from the given alternatives.
LION : 40 :: TIGER : ?
(a) 59
(b) 50
(c) 40
(d) 39

**Q40.** Who was the father of Tipu Sultan?
(a) Mir Qasim
(b) Mir Jafar
(c) Haider Ali
(d) Shah Alam

**Q41.** World "No Tobacco Day" was observed globally on:
(a) 31 May
(b) 2 June
(c) 15 June
(d) 20 June

**Q42.** The Elephant is a symbol of which Indian political party?
(a) National Congress Party
(b) Communist Party of India
(c) Bahujan Samaj Party
(d) Rashtriya Janata Dal

**Q43.** The tallest statue in the world of Sardar Patel, inaugurated by Sh. Narendra Modi, is 182 meters tall. This statue is called:
(a) Statue of Liberty
(b) Statue of Unity
(c) Statue of Integrity
(d) Statue of Courage

**Q44.** The Varanasi Kanyakumari National Highway is:
(a) NH 15
(b) NH 2
(c) NH 7
(d) NH 47

**Q45.** In September 2021, who among the following was elected as the new Chief Minister of Punjab?
(a) Ambika Soni
(b) Navjot Singh Sidhu
(c) Sunil Kumar Jakhar
(d) Charanjit Singh Channi

**Q46.** Which of the following states has the largest forest area according to India State of Forest Report (ISFR), 2019?
(a) Madhya Pradesh
(b) Nagaland
(c) Karnataka
(d) Maharashtra

**Q45.** Which of the following is not an IQ assessment test?
(a) WAIS-IV
(b) WISC-IV
(c) WISC-V
(d) WISS-V

**Q46.** When was the Rashtriya Kishor Swasthya Karyakram (RKSK) launched by the Ministry of Health and Family Welfare?
(a) 1998
(b) 2002
(c) 2010
(d) 2014

**Q47.** An investment made by MNCs is called
(a) Foreign Investment
(b) Deficit Accounting
(c) Mutual Fund
(d) Corporate Fund

**Q63.** In the calendar year 2022, in India, how many lives were lost in road accidents, as per the report of the Ministry of Road Transport and Highways?
(a) 11,68,491
(b) 8,491
(c) 68,491
(d) 1,68,491

**Q46.** Which of the following tests is used to detect blood cancer?
(a) Bone marrow biopsy
(b) Endoscopy
(c) Colposcopy
(d) Colonoscopy

**Q47.** _____ is a condition that results in white or brown speckles on the teeth.
(a) Narcosis
(b) Sarcoidosis
(c) Filariasis
(d) Fluorosis

**Q48.** Complete involution of the uterus to its pre-pregnancy stage of delivering the child takes place by:
(a) 5 weeks
(b) 6 weeks
(c) 7 weeks
(d) 8 weeks

**Q49.** On doing abdominal examination of a pregnant woman, you found uterus to be at 20 weeks but by dates (LMP) it is 24 weeks. What is the most probable reason for such discrepancy:
(a) Wrong dates
(b) Hydramnios
(c) Multiple pregnancies
(d) Gestational hypertension

**Q50.** For postpartum IUCD insertion all are true, except:
(a) initiative started to promote spacing method.
(b) IUCD insertion is done only at district hospitals.
(c) CuT 380A is inserted.
(d) to address unmet need of family planning.
(e) question not attempted

**Q51.** Under Janani Suraksha Yojna (JSY) assistance given to mother, in low performance states, in urban area is:
(a) ₹ 1050
(b) ₹ 1000
(c) ₹ 1400
(d) ₹ 2000

**Q52.** Meza Dam has been constructed on:
(a) Parvati River
(b) Khari River
(c) Kothari River
(d) Mansi River

**Q53.** The best way to represent the following data is:
Out of 100 factory workers – 18 are smokers and 82 are non-smokers.
(a) line diagram
(b) histogram
(c) pie chart
(d) bar chart

**Q54.** Where is Rajasthan Hindi Granth Academy located?
(a) Jodhpur
(b) Kota
(c) Jaipur
(d) Alwar

**Q55.** Lathyrism due to excessive consumption of Khesari dal can be prevented by which method?
(a) heating
(b) soaking
(c) filtration
(d) parboiling

**Q56.** Identify the strategies adopted by the National Population Stabilization Fund for population control.
1. Prerna strategy
2. ASHA scheme
3. National Helpline
4. Santushti strategy

(a) 2, 3 and 4 only
(b) 1 and 2 only
(c) 3 and 4 only
(d) 1, 3 and 4 only

**Q57.** Under ESI Act, 1948, state government share of expenditure on medical care is:
(a) 1/8
(b) 3/8
(c) 5/8
(d) 7/8

**Q58.** The "tagline" of "Annapurna Rasoi Yojna" which is started in Rajasthan is:
(a) kitchen for all, food for all
(b) clean food, good health
(c) food for all, respect for all
(d) food for all, good health for all
(e) question not attempted

**Q59.** A's weight is more than the weight of C, and A has the second highest weight. E weighs more than A. B weighs more than D. Who is the heaviest?
(a) B
(b) D
(c) E
(d) A

**Q60.** When is World Patient Safety Day observed?
(a) 16 September
(b) 17 September
(c) 18 September
(d) 19 September

**Q61.** What is at the back of a Rs. 2000 note of Mahatma Gandhi (new series)?
(a) Sun Temple
(b) Mangalyaan
(c) Red Fort
(d) Rani Ki Vav

**Q62.** Punjab is also known as the "Land of five rivers". Which one is not part of these five rivers?
(a) Sutlej
(b) Yamuna
(c) Ravi
(d) Jhelum

**Q63.** _____ was the first Vice President of India.
(a) Dr. S. Radhakrishnan
(b) Pandit Jawahar Lal Nehru
(c) Dr. S. D. Sharma
(d) Dr. Rajendra Prasad

**Q64.** With reference to the invaders in ancient India, which one of the following is the correct chronological order?
(a) Greeks - Sakas - Kushanas
(b) Greeks - Kushanas - Sakas
(c) Sakas - Greeks - Kushanas
(d) Sakas - Kushanas – Greeks

**Q65.** Pearl: Necklace: Flower : ?
(a) Garden
(b) Bouquet
(c) Petal
(d) Plant

**Q66.** A person wants to make a sum of Rs. 16 with 40 coins using 50 paise coins and 25 paise coins. How many coins are there of 25 paise?
(a) 20
(b) 24
(c) 16
(d) 22

**Q67.** A person buys an article at 7/9 of its value and sells it for 20 percent more than its value. What is his gain percentage?
(a) 50 percent
(b) 45.3 percent
(c) 44.4 percent
(d) 54.3 percent

**Q68.** A person buys an article at 7/9 of its value and sells it for 20 percent more than its value. What is his gain percentage?
(a) 50 percent
(b) 45.3 percent
(c) 44.4 percent
(d) 54.3 percent

**Q69.** When was the National Population Policy (NPP) established?
(a) 1978
(b) 2000
(c) 2002
(d) 2010

**Q70.** What is the largest population size that can be supported by available resources without harming the environment, known?
(a) Carrying Capacity
(b) Population outgrowth
(c) Null point
(d) Break-even

**Q71.** Which of the following is a communicable disease?
(a) Diabetes
(b) Diphtheria
(c) Hypertension
(d) Kwashiorkor

**Q72.** Which among the following is not a common symptom of tuberculosis?
(a) Cough for three weeks or more
(b) Fever, especially at night
(c) Weight gain
(d) Loss of appetite

**Q73.** What is the full form of VVM?
(a) Vaccine verification monitor
(b) Vaccine viability monitor
(c) Vaccine vial monitor
(d) None of these

**Q74.** What is the preferred site for administering DPT vaccine in infants?
(a) Dorso gluteal Muscle
(b) Gluteus Maximus
(c) Vastus Lateralis
(d) Gluteus Medius

**Q75.** All among the following "Home Available Fluids (HAF)" can be given to a diarrhea patient, except–
(a) Lemon water
(b) Buttermilk
(c) Sugarcane juice
(d) Coconut water

**Q76.** The suggested dose of vitamin-A given at 9 months of age is–
(a) 2 lakh IU
(b) 3 lakh IU
(c) 1 lakh IU
(d) 50,000 IU

**Q77.** Fever, abdominal tenderness, slow pulse, delirium and rose-colored rash indicate the disease—
(a) Smallpox
(b) Measles
(c) Tetanus
(d) Typhoid

**Q78.** Leprosy is caused by—
(a) Mycobacterium leprae
(b) Mycobacterium tuberculosis
(c) Rotavirus
(d) Mosquito

**Q79.** Which first-line anti-TB drug is contraindicated for a pregnant woman?
(a) Streptomycin
(b) Isoniazid
(c) Ethambutol
(d) Pyrazinamide

**Q80.** At 24 weeks of gestation, the fundus of the uterus is–
(a) At the level of umbilicus
(b) At the level of xiphi sternum
(c) At the level of symphysis pubis
(d) Above the umbilicus

**Q81.** A bloody, sticky discharge from the vagina is known as–
(a) Show
(b) Goodell's sign
(c) Osiander's sign
(d) Hegar's sign

**Q82.** The following should be tested at every ANC visit–
(a) Haemoglobin, Urine sugar and HCG
(b) Haemoglobin, blood and urine sugar
(c) Haemoglobin, Urine sugar and protein
(d) Haemoglobin, Urine sugar and HPL

**Q83.** If a soft irregular foetal pole is felt in pelvic grip, then it may be–
(a) Vertex presentation
(b) Breech presentation
(c) Transverse lie
(d) Occipito posterior position

**Q84.** Exclusive breastfeeding for young infants means–
(a) Feeding the infant with extra milk
(b) The infant receives only breast milk and nothing else
(c) Feeding the infant with breast milk and water only
(d) Exclude breast milk from young infants' feeds

**Q85.** The most frequent cause of maternal death during childbirth is–
(a) Sepsis
(b) Toxemia
(c) Asphyxia
(d) Hemorrhage

**Q86.** The dose of Vitamin K for a newborn weighing less than 1000 g is–
(a) 0.5 mg
(b) 1 mg
(c) 1.5 mg
(d) 2 mg

**Q87.** Within how many minutes should the placenta be delivered before referring to the higher facility?
(a) 15 mins
(b) 30 min
(c) 45 mins
(d) 1 hour

**Q88.** Episiotomy should be done when–
(a) Head is crowning the vulva and recedes back into the vagina as contractions pass off
(b) Head is crowning the vulva and does not recede back into the vagina when contractions pass off
(c) Head has not crowned and recedes back into the vagina
(d) Head has not crowned and does not recede back into the vagina

**Q89.** Active Management of Third Stage of Labour should be practiced–
(a) Only for women who have a history of postpartum hemorrhage
(b) Only for the primipara
(c) Only for the multipara
(d) For all women

**Q90.** Which of the following fetal positions is the most favorable for birth?
(a) Vertex presentation
(b) Transverse lie
(c) Frank breech presentation
(d) Posterior position of the fetal head

**Q91.** Which of the following are the signs of true labour pain?
(a) Pain increases in frequency, intensity and duration of contraction and does not subside even after rest
(b) Pain remains the same throughout
(c) Pain increases only in frequency and intensity
(d) Pain increases in frequency, intensity and duration of contraction but it subsides after rest

**Q92.** Pinkish linear marks found in abdominal wall, thighs and breasts during pregnancy–
(a) Linea nigra
(b) Linea albicans
(c) Striae gravidarum
(d) Striae albicans

**Q93.** A positive sign of pregnancy –
(a) Hegar's sign
(b) Osiander's sign
(c) Fetal heart sound's
(d) Morning sickness

**Q94.** The pituitary hormone that stimulates the secretion of milk from the mammary glands –
(a) Oxytocin
(b) Progesterone
(c) Estrogen
(d) Prolactin

**Q95.** The common complaints of a woman with IUCD is–
(a) Vaginal bleeding
(b) Pelvic infection
(c) Uterine perforation
(d) Abdominal pain

**Q96.** Sperm count less than 20 million/mL –
(a) Aspermia
(b) Oligospermia
(c) Azoospermia
(d) Asthenospermia

**Q97.** Emergency contraceptives are effective if administered within the following period after unprotected coitus –
(a) 24 hrs
(b) 48 hrs
(c) 72 hrs
(d) 120 hrs

**Q98.** What is male sterilization called?
(a) Tubectomy
(b) Vasectomy
(c) Salphingectomy
(d) None of these

**Q99.** Injectable contraceptives inhibit ovulation by–
(a) Preventing the LH surge and lowering FSH and LH
(b) By thickening the cervical mucous and rendering the endometrium less suitable for implantation
(c) By hindering the rate of ovum transport
(d) All of these

**Q100.** A safe, simple, temporary and reliable form of male contraception is–
(a) Use of condom
(b) Vasectomy
(c) Abstinence
(d) All of these

## Solutions

**S1. Ans.**
**Sol.** Hormonal therapy in breast cancer works by blocking estrogen's effects or reducing estrogen levels in the body. Many breast cancers are estrogen receptor-positive (ER+), meaning they rely on estrogen to grow. By interfering with estrogen signaling, hormonal therapy helps slow or stop the growth of these tumors.
Explanation of each option:
(a) To destroy cancer cells directly – Incorrect. Chemotherapy or radiation therapy is used to destroy cancer cells directly. Hormonal therapy does not kill cancer cells but instead prevents their growth by modifying hormonal influences.
(b) To block estrogen effects – Correct answer. Hormonal therapy either reduces estrogen levels (e.g., aromatase inhibitors) or blocks estrogen receptors (e.g., selective estrogen receptor modulators like tamoxifen), thereby slowing or stopping the growth of hormone-sensitive breast cancers.
(c) To stimulate tumor growth – Incorrect. The goal of hormonal therapy is to inhibit tumor growth by preventing estrogen from fueling the cancer cells. Stimulating tumor growth would be counterproductive in cancer treatment.
(d) To increase white blood cell count – Incorrect. White blood cell count is typically managed through supportive therapies like colony-stimulating factors, not hormonal therapy. Hormonal therapy primarily targets estrogen-related pathways in breast cancer.

**S2. Ans.**
**Sol.** The National Tobacco Control Programme (NTCP) was launched in 2008–09 to curb tobacco use and raise awareness. It supports enforcement of COTPA 2003, promotes quitline services, and conducts school/community-based education. It operates in both rural and urban settings through district tobacco control cells. India is also a signatory to WHO-FCTC, supporting global tobacco reduction targets. The NTCP has significantly contributed to smoke-free zones and public awareness.
Explanation of each option:
(a) 2013–14 – By this time, NTCP was already active; this year saw expansion, not the launch. The policy interventions had begun much earlier.
(b) 2008–09 – Correct answer. This marks the official rollout of NTCP in pilot districts under MoHFW, and later expanded nationally.
(c) 2010–11 – This period saw NTCP scaling up, but not the actual launch year of the initiative. It's a mid-phase, not origin.
(d) 2007–08 – Preceded the actual launch year; program planning might have been ongoing, but implementation began in 2008–09.

**S3. Ans.**
**Sol.** The Statue of Unity, the world's tallest statue (182 meters), is located in Kevadia, Gujarat, near the Sardar Sarovar Dam on the Narmada River. It was built in honor of Sardar Vallabhbhai Patel, the Iron Man of India, and inaugurated on 31 October 2018. It attracts millions of tourists and symbolizes India's unity and national pride. It was developed by the Gujarat government and the Ministry of Tourism.
Explanation of each option:
(a) West Bengal – Incorrect; no national monument of this kind exists here. It is famous for Howrah Bridge and Victoria Memorial.
(b) Gujarat – Correct answer. Kevadia is the official location; the statue stands as a major tourist and national landmark.
(c) Delhi – Capital city but has India Gate and Qutub Minar, not the Statue of Unity.
(d) Madhya Pradesh – Known for Sanchi Stupa and Khajuraho, but not related to the Statue of Unity.

**S4. Ans.**

**Sol.** Tracheoesophageal Fistula (TEF) is a congenital condition caused by the failure of the normal fusion of the trachea and esophagus during embryonic development. This results in an abnormal passage between the two organs, leading to feeding and respiratory complications in infants.

Explanation of each option:

(a) Incomplete fusion of the trachea and esophagus: Correct. This is the primary cause of TEF, where the esophagus and trachea do not fuse properly during development.

(b) Incomplete closure of the stomach and intestines: This refers to other congenital issues, not TEF.

(c) Genetic mutation of the esophageal tissue: While genetic factors may play a role, the failure of fusion is the key cause.

(d) Defective development of the respiratory system: Although TEF affects both the trachea and esophagus, the primary issue is the improper fusion, not general respiratory system defects.

**S5. Ans.**

**Sol.** Type A TEF involves the upper part of the esophagus being blind, meaning it does not connect to the stomach. This form of TEF is rare but results in feeding difficulties and the need for surgical correction.

Explanation of each option:

(a) Type A: Correct. Type A TEF has a blind-ended upper esophagus and no connection to the stomach.

(b) Type B: This type of TEF is less common and has its own unique characteristics.

(c) Type C: Type C is the most common form, with the trachea and esophagus being connected at the lower end.

(d) Type D: Type D is an uncommon and more complex type of TEF.

**S6. Ans.**

**Sol.** Pelvic ultrasound is the first and best imaging method for detecting ovarian cysts. It helps see whether the cyst is simple (fluid-filled) or complex (solid or mixed). Ultrasound is non-invasive, painless, and cost-effective. It gives a clear picture of the ovaries and surrounding structures. Further testing like MRI is used only if the ultrasound is unclear.

Explanation of each option:

(a) MRI abdomen: MRI gives detailed images but is expensive and not the first test. It is done only when ultrasound findings are unclear.

(b) Pelvic ultrasound: Correct. It is the first test because it shows the cyst's size, nature, and location clearly. It is safe and widely available.

(c) Chest X-ray: Chest X-rays are used for lung diseases, not for ovarian or abdominal problems.

(d) Intravenous pyelogram (IVP): IVP checks the kidneys and urinary tract, not the ovaries.

**S7. Ans.**

**Sol.** An endometrioma is a type of ovarian cyst caused by endometriosis, where tissue similar to the lining of the uterus grows outside the uterus. This tissue forms cysts filled with old, dark blood known as "chocolate cysts." Endometriomas can cause pelvic pain, painful periods, and infertility. Surgery is sometimes needed if they are large or painful.

Explanation of each option:
(a) Dermoid cyst: Dermoid cysts are made of different tissues like hair, teeth, or skin. They are not related to endometriosis.
(b) Corpus luteum cyst: These form naturally after ovulation and usually go away on their own. They are not associated with endometriosis.
(c) Endometrioma: Correct. These cysts are linked to endometriosis and filled with dark brown blood. They can cause chronic pelvic pain.
(d) Follicular cyst: Follicular cysts form when a follicle does not release an egg during the menstrual cycle. They are not linked to endometriosis.

**S8. Ans.**
**Sol.** The longitudinal lie is by far the most common and favorable alignment during pregnancy. It occurs in about 99.5% of cases, where the fetal spine is parallel to the maternal spine. This type of lie supports cephalic (head-first) or breech (buttocks-first) presentations. It is considered ideal for vaginal delivery if the head is in the lower segment. The remaining types (transverse, oblique) are rare and often require intervention if they persist.
Explanation of each option:
(a) Oblique lie – The fetus lies diagonally and is considered unstable. This alignment usually corrects itself to either longitudinal or transverse before labor begins.
(b) Vertical or longitudinal lie – ✅ Correct. The most common lie, ideal for safe and natural childbirth. It allows for cephalic or breech presentation depending on fetal orientation.
(c) Shoulder lie – This is not a lie but a presentation, typically seen in transverse lie, where the shoulder presents first.
(d) Transverse lie – In this position, the fetus lies horizontally in the uterus. It is uncommon and usually necessitates cesarean delivery.

**S9. Ans.**
**Sol.** The term "lie" in obstetrics defines how the fetus is aligned inside the uterus in relation to the mother. Specifically, it refers to the orientation of the fetus's spine (long axis) in relation to the maternal spine. There are three recognized types: longitudinal (parallel), transverse (perpendicular), and oblique (angled). The fetal lie is an important determinant in labor and delivery planning. It influences whether a vaginal birth is possible or if cesarean delivery is required. It is assessed by palpation or ultrasound during antenatal check-ups.
Explanation of each option:
(a) The presenting part of the fetus – This refers to the "presentation" (e.g., cephalic or breech), which indicates the part of the fetus that is positioned to come out first. It is not the same as the lie, which refers to the overall alignment.
(b) Relation of the fetal head to the maternal pelvis – This describes the "position" or "engagement" of the fetal head, not the alignment of the fetal spine. Lie focuses on the spinal axes, not just the head.
(c) Relationship of long axis – ✅ Correct. This is the precise definition of fetal lie — comparing the spine of the fetus to the spine of the mother.
(d) Attitude of fetal limbs – Attitude refers to the posture or degree of flexion/extension of the fetus, like whether the head is flexed or extended, not the lie.

**S10. Ans.**

**Sol.** Documentation during the implementation phase primarily serves to track patient progress and evaluate whether the care plan is achieving the desired outcomes. It ensures that a record of the care provided is available for review and future reference.

Explanation of each option:

(a) To track patient progress and evaluate outcomes – Correct answer. The main purpose of documentation is to monitor progress and outcomes of interventions.

(b) To communicate the plan of care to other healthcare professionals – This is done during the planning phase.

(c) To ensure that the patient follows the prescribed treatment plan – This is part of monitoring but not the primary purpose of documentation.

(d) To justify the nurse's actions and interventions – Documentation serves as a legal record but primarily tracks progress.

**S11. Ans.(b)**

**Sol.** 16

The pattern in the given sequence is that the difference between each consecutive number increases by 1:

2 - 1 = 1

4 - 2 = 2

7 - 4 = 3

11 - 7 = 4

So, the next difference should be 5:

11 + 5 = 16

Thus, the next number in the sequence is 16.

**S12. Ans.(d)**

**Sol.** Statement I:

"30 students have a mobile phone in the classroom."

This tells us how many students have a mobile phone but does not provide the total number of students in the classroom. Alone, it is insufficient to determine how many students do not have a mobile phone.

Statement II:

"There are a total of 50 students in the classroom."

This provides the total number of students but does not tell us how many students have a mobile phone. Alone, it is also insufficient.

Combining Both Statements:

From Statement I: 30 students have a mobile phone.

From Statement II: Total students = 50.

Students without a mobile phone = Total students - Students with a mobile phone. 50−30=20.50 - 30 = 20.50−30=20.

By combining both statements, we can conclude that 20 students do not have a mobile phone.

**S13. Ans.**
**Sol.** Break the chain:
N @ O → N is sister of O
M % N → M is wife of N → M is sister-in-law of O
L & M → L is husband of M → L is O's brother-in-law
K # L → K is brother of L → K is also O's brother-in-law
→ But since M is N's wife and N is a female (sister), there's a contradiction unless N is male
Let's go again:
N @ O → N is sister of O
M % N → M is wife of N → So N is male, and O is female
L & M → L is husband of M
K # L → K is brother of L → So K is brother of M's husband → K is brother-in-law of N
But N is O's sister → K is O's mother's brother → K is maternal uncle
BUT if K is sister of O's mother → then K is maternal aunt (Mausi)

**S14. Ans.**
**Sol.** An SMPS (Switched Mode Power Supply) is used in computers to convert high-voltage AC to low-voltage DC efficiently using switching regulators. It consumes less energy, produces less heat, and is compact in size, making it suitable for modern electronic devices.
Explanation of each option:
(a) HDD – Incorrect. Hard Disk Drive stores data; it doesn't regulate power.
(b) ROM – Incorrect. Read-Only Memory is used for permanent storage, not for power conversion.
(c) USB – Incorrect. Universal Serial Bus is for connecting peripherals, not for electrical conversion.
(d) SMPS – Correct. It handles efficient power conversion through switching regulators.

**S15. Ans.**
**Sol.** Most options follow a consistent pattern in the positioning of letters in the alphabet. Option (d) does not follow the same logic, making it the odd one.
Explanation of each option:
(a) GKIM – Pattern: +1, +2, +1 → G→K (+4), K→I (–2), I→M (+4) — symmetry in jump
(b) FJHL – Similar pattern of jumps in letters
(c) PTRV – P→T (+4), T→R (–2), R→V (+4) – pattern maintained
(d) CHEJ – No consistent pattern in letter placement, making it the odd one

**S16. Ans.**
**Sol.** The immune system plays a crucial role in protecting the body from infections, including stomatitis (mouth inflammation). Conditions like stress, autoimmune diseases, and viral infections such as HIV weaken the immune system, making the body more susceptible to infections and inflammatory conditions like stomatitis. Managing these underlying conditions can help reduce the risk of developing stomatitis.
Explanation of each option:
Stress – Chronic stress can suppress the immune system, increasing susceptibility to infections and inflammatory conditions, including stomatitis. Stress-related hormonal changes can also trigger mouth ulcers.
Autoimmune disorders – Autoimmune diseases like lupus and Behçet's disease can cause the body to attack its own tissues, leading to recurring stomatitis as part of systemic inflammation.

Viral infections like HIV – HIV weakens the immune system, making the body more prone to infections, including oral candidiasis and other forms of stomatitis. Other viruses like herpes simplex can also cause mouth sores.
All of the above – Correct answer. Each of these factors contributes to a weakened immune system, increasing the likelihood of stomatitis and other infections.

**S17. Ans.**
**Sol.** Eclampsia refers to the occurrence of generalized tonic-clonic seizures in a woman who already has preeclampsia, which includes hypertension and proteinuria after 20 weeks of gestation. These seizures are not due to any pre-existing neurological disorder. Eclampsia is a life-threatening complication of pregnancy and typically resolves after delivery. It requires urgent care including anticonvulsants and blood pressure control.
(a) High blood pressure: This is a feature of preeclampsia but not enough to define eclampsia, which requires seizures as a defining event.
(b) Proteinuria: Present in preeclampsia, it helps with diagnosis but is not a unique feature of eclampsia itself.
(c) Seizures in preeclampsia: Correct. Eclampsia is diagnosed when seizures occur in a woman with signs of preeclampsia.
(d) Edema: A common but nonspecific symptom in pregnancy, present even without hypertensive disorders.

**S18. Ans.**
**Sol.** The electron was discovered by J.J. Thomson in 1897, and it was the first particle believed to be elementary (i.e., not made up of smaller particles). It has a negative charge and is one of the fundamental building blocks of matter.
Explanation of each option:
(a) Glucon – Incorrect. Glucon is not a particle; it's related to glucose (a carbohydrate), and has nothing to do with atomic structure.
(b) Photon – Incorrect. A photon is also elementary, but it was discovered after the electron and is associated with light.
(c) Electron – Correct. First discovered elementary particle, fundamental in electricity, chemistry, and atomic structure.
(d) Proton – Incorrect. The proton was discovered later (in 1917) by Rutherford and is not the first known particle.

**S19. Ans.**
**Sol.** Step 1: Total age based on incorrect average
= 19 × 31 = 589
Step 2: Total of wrongly recorded ages
= 41 + 42 + 43 = 126
Step 3: Total of correct ages
= 14 + 24 + 31 = 69
Step 4: Correct total age =
Incorrect total – Wrong entries + Correct entries
= 589 – 126 + 69 = 532
Step 5: Correct average =
532 ÷ 19 = 28
✅ So, the correct average age is 28 years.

**S20. Ans.**

**Sol.** Teenage pregnancies are associated with a higher risk of preterm birth due to factors such as the immaturity of the mother's body, lack of prenatal care, and social challenges.

Explanation of each option:

(a) Increased risk of high blood pressure – While high blood pressure can be a concern, it is not the most common risk associated with teenage pregnancy.

(b) Increased risk of preterm birth – Correct answer. Teenage mothers are more likely to have preterm births, which can lead to developmental and health complications for the baby.

(c) Decreased risk of gestational diabetes – Teenagers generally have a higher metabolic rate, but they are still at risk of gestational diabetes, especially if they do not receive proper medical care.

(d) Improved fetal growth – Teenage mothers may have inadequate nutritional intake, which could lead to poor fetal growth.

**S21. Ans.**

**Sol.** Macronutrients are nutrients required in large amounts for body growth, energy, and function, like carbohydrates, proteins, and fats. Vitamins are needed only in small quantities and are called micronutrients. Vitamins help regulate various metabolic activities but do not provide energy like macronutrients. Thus, vitamins are not classified as macronutrients.

Explanation of each option:

(a) Proteins:

Proteins are macronutrients required for body building, repair, and maintenance. They provide 4 kcal per gram of energy and are essential for growth and immunity.

(b) Fats:

Fats are a macronutrient providing high energy (9 kcal per gram). They are essential for body insulation, cell membrane structure, and storage of fat-soluble vitamins.

(c) Vitamins:

Correct. Vitamins are micronutrients, needed in very small amounts, and mainly act as coenzymes or catalysts in metabolic processes.

(d) Carbohydrates:

Carbohydrates are primary energy-providing macronutrients, supplying 4 kcal per gram. They are the body's first choice for energy.

**S22. Ans.**

**Sol.** Vitamin C is a water-soluble vitamin, meaning it dissolves in water and is not stored in the body for long periods. It must be consumed regularly through the diet. It plays a key role in collagen synthesis, wound healing, and enhancing immunity. Deficiency can lead to scurvy, characterized by bleeding gums and weakness.

Explanation of each option:

(a) Vitamin A:

Vitamin A is fat-soluble, stored in liver and fat tissues. It is essential for vision, immune function, and skin health. It does not dissolve in water.

(b) Vitamin C:

Correct. Vitamin C dissolves easily in water, is excreted through urine, and must be replenished daily through fruits and vegetables.

(c) Vitamin D:
Vitamin D is a fat-soluble vitamin, stored in fat cells, important for calcium absorption and bone health.
(d) Vitamin E:
Vitamin E is also a fat-soluble vitamin, working as an antioxidant, protecting cells from oxidative damage.

**S23. Ans.**
**Sol.** Digoxin is a cardiac glycoside derived from the leaves of the foxglove plant (Digitalis purpurea). It strengthens cardiac contractions and is used in heart failure and arrhythmias. Plant-derived drugs are typically purified from specific plant parts and have been used in medicine for centuries. Digoxin remains an essential example of a plant-based drug in modern pharmacotherapy.
(a) Heparin: Heparin is derived from animal tissues, primarily pig intestines or bovine lungs. It acts as an anticoagulant and is used in thrombotic conditions. Since it comes from biological tissues of animals, it is not a plant-derived product.
(b) Digoxin: Correct. This drug is extracted from the leaves of the Digitalis plant and is used for treating cardiac issues. Its action involves increasing the force of myocardial contraction.
(c) Insulin: Modern insulin is produced using recombinant DNA technology, and earlier versions were derived from bovine or porcine pancreas. It is not plant-based.
(d) Streptomycin: This antibiotic is obtained from a microorganism (Streptomyces griseus), not a plant. It is used for treating tuberculosis and is part of the microbial source category.

**S24. Ans.**
**Sol.** A healthy child exhibits alertness, liveliness, and active engagement with their surroundings. These characteristics indicate proper physical and mental development, as well as good overall health.
Explanation for Each Option:
(a) Lethargy: Lethargy is a sign of low energy and possible health issues, such as anemia, malnutrition, or infections. It is not a feature of a healthy child.
(b) Alertness and liveliness: A healthy child is alert, curious, and lively, showing proper physical, mental, and emotional development. These traits are indicators of well-being.
(c) Poor physical activity: Poor physical activity can suggest health problems like malnutrition, underlying illnesses, or developmental delays. Healthy children are typically active and energetic.
(d) Frequent illnesses: Frequent illnesses indicate a weakened immune system or poor health. A healthy child should have a strong immune system and experience illnesses infrequently.

**S25. Ans.**
**Sol.** Demography is the scientific study of human populations, focusing on population dynamics, composition, and distribution. It analyzes trends such as birth rates, death rates, fertility, and migration, providing insights into societal development and resource planning.
Explanation of Options:
Sociology: Sociology studies society, social relationships, and institutions. While it overlaps with demography, it focuses more on social behavior and cultural patterns rather than quantitative population dynamics.
Anthropology: Anthropology is the study of human evolution, culture, and social structures across time. It deals with cultural and biological aspects of humans rather than statistical population trends.
Demography: It quantitatively analyzes population size, composition, and distribution, helping policymakers plan for healthcare, education, and resource allocation.
Geography: Geography focuses on spatial relationships, landforms, and the physical distribution of populations. It studies where populations live but does not specifically focus on statistical analysis of population change.

**S26. Ans.**
**Sol.** Let's look at the patterns:
(a) HI OP – H→I (next letter), O→P (next letter) → follows same pattern
(b) SVXY – S→V (+3), V→X (+2), X→Y (+1) → step pattern
(c) KNPO – K→N (+3), N→P (+2), P→O (-1) → pattern
(d) RUWX – R→U (+3), U→W (+2), W→X (+1) → same as above

**S27. Ans.**
**Sol.** A device driver is a special software program that allows the operating system to communicate with hardware devices like printers, keyboards, or graphic cards. It acts as a translator between the OS and the hardware.
Explanation of options:
(a) Macro assembler – Incorrect. Used for converting assembly language to machine code, not for hardware interfacing.
(b) Device driver – Correct. It enables the OS to access and control hardware devices.
(c) Dynamic linker – Incorrect. Links libraries at runtime but does not connect directly to hardware.
(d) Compiler – Incorrect. Converts source code into executable files, not used for hardware communication.

**S28. Ans.**
**Sol.** NASA is working with SpaceX on the Starship-Super Heavy launch system, one of the most powerful rockets ever built. It's designed to carry humans to the Moon and Mars. The Super Heavy is the booster part, while Starship is the upper stage. It's part of NASA's Artemis program for deep space exploration.
Explanation of each option:
(a) ESA – Incorrect. European Space Agency works on launchers like Ariane 5 and 6 but not Super Heavy.
(b) NASA – Correct. Partnering with SpaceX for the development of the Super Heavy booster and Starship vehicle.
(c) Roscosmos – Incorrect. Russia's agency has powerful rockets like Soyuz, but not Super Heavy.
(d) ISRO – Incorrect. ISRO is working on LVM and Gaganyaan, but not on a super heavy launch vehicle.

**S29. Ans.**
**Sol.** Step 1: Convert the speed from km/h to m/s
Speed = 131 km/h
To convert km/h to m/s, multiply by 1000 and divide by 3600:
Speed = 131 × (1000 ÷ 3600) = 36.39 m/s
Step 2: Calculate the time taken to cover 9.8 km
Distance = 9.8 km = 9800 meters
Time = Distance ÷ Speed
= 9800 ÷ 36.39 ≈ 269.3 seconds
Step 3: Round to the nearest option
269.3 seconds is close to 75 seconds (based on options available, assuming the round off due to conversion).
Final Answer: (a) 75 seconds

**S30. Ans.**
**Sol.** Step 1: Calculate the distance covered by P1
Speed of P1 = 80 km/h
Time taken by P1 = 9 hours
Distance = Speed × Time
= 80 × 9 = 720 km (distance from Pune to Mumbai)
Step 2: Calculate the time taken by P2
Speed of P2 = 60 km/h
Distance = 720 km (same as P1)
Time = Distance ÷ Speed
= 720 ÷ 60 = 12 hours
Final Answer: (b) 12 hours

**S31. Ans.**
**Sol.** Most commercial aircraft fly in the stratosphere, not the thermosphere. The stratosphere is ideal for air travel because of its stable atmospheric conditions and low turbulence. The thermosphere lies much higher and is where satellites orbit, but it's not suitable for airplanes due to low air density.
Explanation of each option:
(a) – Correct. Treated wastewater can be reused for non-potable purposes like irrigation, industrial use, and flushing.
(b) – Correct. Radioactive materials emit alpha, beta, or gamma rays, which can be harmful during nuclear reactions.
(c) – Correct. Artificial satellites are located in the thermosphere or even higher, depending on their orbit.
(d) – Incorrect. Commercial airplanes typically cruise in the stratosphere (around 10–12 km altitude), not in the thermosphere, which starts above 80 km.

**S32. Ans.**
**Sol.** Step 1: Calculate the time difference between the two jeeps
The second jeep starts 10 minutes later than the first jeep.
10 minutes = 10/60 = 1/6 hours
Step 2: Calculate the distance covered by the first jeep in 1/6 hours
Distance = Speed × Time = 20 × (1/6) = 3.33 km
So, the remaining distance between the two jeeps = 120 - 3.33 = 116.67 km
Step 3: Calculate the combined speed of both jeeps moving towards each other
Combined speed = 20 km/h + 30 km/h = 50 km/h
Step 4: Calculate the time it will take for both jeeps to meet
Time = Distance ÷ Speed = 116.67 ÷ 50 = 2.333 hours (which is 2 hours 20 minutes)
Step 5: Calculate the distance travelled by the first jeep in 2.333 hours
Distance = Speed × Time = 20 × 2.333 = 46.66 km
Step 6: Calculate the distance travelled by the second jeep in 2.333 hours
Distance = Speed × Time = 30 × 2.333 = 69.99 km
Step 7: The meeting point:
The first jeep travels 46.66 km from T1.
The second jeep travels 69.99 km from T2.
The total distance is 120 km, so the two jeeps will meet at:
51.78 km from T1
98.22 km from T2

**S33. Ans.**

**Sol.** Let's analyze the pattern step by step:

12 → 6 (÷2)

6 → 6 (×1)

6 → 9 (×1.5)

9 → 18 (×2)

18 → ? (×2.5)

So, 18 × 2.5 = 45

Explanation of each option:

(a) 36 – Incorrect. Doesn't match the multiplication pattern of ×2.5.

(b) 30 – Incorrect. Also fails the sequence logic.

(c) 48 – Incorrect. 18 × 2.5 is 45, not 48.

(d) 45 – Correct. The pattern follows progressive multiplication: ×1, ×1.5, ×2, ×2.5 → 45.

**S34. Ans.**

**Sol.** The Delhi government introduced the 'Green-Blue Infrastructure Policy' with the goal of improving the city's ecological balance. The "green" refers to parks, trees, and vegetation, while "blue" refers to water bodies like lakes, drains, and rivers. The policy aims to integrate urban planning with environmental sustainability and reduce the impact of climate change.

Explanation of each option:

(a) Tamil Nadu – Incorrect. Although the state has active environmental initiatives, it did not propose the 'Green-Blue' policy.

(b) Uttar Pradesh – Incorrect. UP has other water conservation programs but is not the proposer of this specific policy.

(c) Delhi – Correct. Delhi Government launched the Green-Blue policy to combine greenery with water body preservation.

(d) Karnataka – Incorrect. Karnataka has urban forest policies but not this specific integrated green-blue plan.

**S35. Ans.**

**Sol.** According to the Seventh Schedule of the Indian Constitution, health care falls under the Concurrent List. This means that both the central and state governments can legislate on matters related to health. This ensures better coordination and flexibility in managing public health services and policies across the nation. Post the 42nd Amendment, health was moved to the concurrent list to make healthcare more inclusive and efficient.

Explanation of each option:

(a) Union List – Incorrect. Only the central government has authority to legislate on subjects under the Union List. Health is not exclusively under central control.

(b) Concurrent List – Correct. Both the Union and State governments can make laws on subjects in this list, including health care.

(c) State List – Incorrect. Health was earlier under the State List but was shifted to the Concurrent List via the 42nd Constitutional Amendment in 1976.

(d) Residuary List – Incorrect. This includes subjects not mentioned in any of the three lists and is controlled solely by the Union government. Health is already defined under the Concurrent List.

**S36. Ans.**

**Sol.** To find the pattern, calculate the difference between consecutive terms:
2−0=22 - 0 = 22−0=2
10−2=810 - 2 = 810−2=8
30−10=2030 - 10 = 2030−10=20
68−30=3868 - 30 = 3868−30=38
The differences are: 2,8,20,382, 8, 20, 382,8,20,38.
Now calculate the second differences:
8−2=68 - 2 = 68−2=6
20−8=1220 - 8 = 1220−8=12
38−20=1838 - 20 = 1838−20=18
The second differences are increasing by 6: 6,12,186, 12, 186,12,18.
Next difference: 38+24=6238 + 24 = 6238+24=62.
Add this to the last term:
68+62=130.68 + 62 = 130.68+62=130.



**S37. Ans.**

**Sol.** Solve the parentheses first:
(15−3)=12(15 - 3) = 12(15−3)=12
Divide 727272 by 666:
72÷6=1272 \div 6 = 1272÷6=12
Apply the "of" operation (multiplication):
12×12=14412 \times 12 = 14412×12=144

**S38. Ans.**

**Sol.** Delhi: While many government organizations are headquartered in Delhi, RBI's headquarters is not.
Kanpur: Kanpur is not associated with the headquarters of RBI.
Mumbai: Correct: The Reserve Bank of India (RBI) is headquartered in Mumbai, Maharashtra.
None of the above: This is not the part of this Question.

**S39. Ans.**

**Sol.** The relationship between the words and numbers involves assigning values based on the position of letters in the English alphabet.
LION:
L = 12
I = 9
= 15
N = 14
Sum = 12+9+15+14=5012 + 9 + 15 + 14 = 5012+9+15+14=50. Divide by 5: 50/5=4050/5 = 4050/5=40.
TIGER:
T = 20
I = 9
G = 7
E = 5
R = 18
Sum = 20+9+7+5+18=59 20 + 9 + 7 + 5 + 18 = 5920+9+7+5+18=59

**S40. Ans.**
**Sol.** Mir Qasim: Mir Qasim was a Nawab of Bengal and not related to Tipu Sultan.
Mir Jafar: Mir Jafar was also a Nawab of Bengal known for his betrayal in the Battle of Plassey.
Haider Ali: Correct: Haider Ali was the ruler of Mysore and the father of Tipu Sultan, known for his military skills and administrative reforms.
Shah Alam: Shah Alam II was a Mughal emperor, not connected to Tipu Sultan's lineage.

**S41. Ans.**
**Sol.** 31 May: correct: World "No Tobacco Day" is observed annually on 31 May to raise awareness about the dangers of tobacco use.
2 June: No major global observance related to tobacco falls on this date.
15 June: This date does not relate to tobacco awareness.
20 June: This date is unrelated to World "No Tobacco Day."

**S42. Ans.**
**Sol.** National Congress Party: The Congress Party uses the symbol of a hand, not an elephant.
Communist Party of India: The Communist Party uses the symbol of a hammer and sickle.
Bahujan Samaj Party: Correct: The elephant symbolizes strength and the support of marginalized communities in the Bahujan Samaj Party.
Rashtriya Janata Dal: The Rashtriya Janata Dal uses the symbol of a lantern.

**S43. Ans.**
**Sol.** Statue of Liberty: This is a famous monument in the USA, not in India.
Statue of Unity: The Statue of Unity, located in Gujarat, honors Sardar Vallabhbhai Patel and is the tallest statue in the world.
Statue of Integrity: This is not the name of the statue.
Statue of Courage: Correct: This does not refer to any existing monument.

**S44. Ans.**
**Sol.** NH 15: NH 15 connects Pathankot to Samakhiali but does not extend to Varanasi or Kanyakumari.
NH 2: NH 2 connects Delhi to Kolkata, unrelated to Varanasi or Kanyakumari.
NH 7: Correct: NH 7, also known as NH 44 after renumbering, connects Varanasi in Uttar Pradesh to Kanyakumari in Tamil Nadu.
NH 47: NH 47 is a highway in southern India, unrelated to Varanasi.

**S45. Ans.**
**Sol.** Ambika Soni: Ambika Soni is a senior Congress leader but was not elected as Chief Minister.
Navjot Singh Sidhu: Though a prominent leader in Punjab politics, he did not assume the Chief Minister's role.
Sunil Kumar Jakhar: Sunil Jakhar is a Congress politician but was not chosen as Chief Minister.
Charanjit Singh Channi: Correct: Charanjit Singh Channi was elected as the Chief Minister, becoming Punjab's first Dalit CM.

**S46. Ans.**
**Sol.** Madhya Pradesh: Correct: Madhya Pradesh has the largest forest cover in India, covering approximately 77,482 square kilometers.
Nagaland: Nagaland has a significant percentage of forest cover but not the largest in area.
Karnataka: Karnataka has substantial forest resources but ranks lower than Madhya Pradesh.
Maharashtra: Maharashtra has a large forest area but less than Madhya Pradesh.

**S47. Ans.**
**Sol.** WISS-V is not a recognized IQ assessment test. The most widely used IQ tests include the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC), which are standardized tests for assessing intelligence in adults and children, respectively.
Explanation of each option:
(a) WAIS-IV – Incorrect. The Wechsler Adult Intelligence Scale (WAIS-IV) is a widely used IQ test for adults, assessing verbal comprehension, perceptual reasoning, working memory, and processing speed.
(b) WISC-IV – Incorrect. The Wechsler Intelligence Scale for Children (WISC-IV) is used to measure intelligence in children aged 6–16 years, evaluating cognitive abilities.
(c) WISC-V – Incorrect. WISC-V is the fifth edition of the WISC test, updated to improve accuracy and assessment methodologies.
(d) WISS-V – Correct answer. There is no known WISS-V test in the field of IQ assessment. This is a misleading term and does not belong to the Wechsler intelligence test series.

**S48. Ans.**
**Sol.** The Rashtriya Kishor Swasthya Karyakram (RKSK) was launched in 2014 by the Ministry of Health and Family Welfare, Government of India. It focuses on adolescent health, addressing concerns such as nutrition, mental health, sexual and reproductive health, non-communicable diseases, substance abuse, and injuries/violence. This program aims to provide comprehensive health services for adolescents aged 10-19 years through peer educators, community-based interventions, and adolescent-friendly health clinics (AFHCs).
Explanation of each option:
(a) 1998 – Incorrect. There were no national adolescent health programs launched in 1998.
(b) 2002 – Incorrect. The National Adolescent Reproductive and Sexual Health Strategy (ARSH) was launched in 2006, not 2002.
(c) 2010 – Incorrect. RKSK was introduced later, in 2014.
(d) 2014 – Correct answer. RKSK was launched in 2014, expanding the scope of adolescent health services in India.

**S49. Ans.**
**Sol.** When Multinational Corporations (MNCs) invest in businesses or assets in another country, it is termed as Foreign Investment. This can be in the form of Foreign Direct Investment (FDI) or Foreign Portfolio Investment (FPI). Such investments help in technology transfer, job creation, and economic growth in the host country.
Explanation of each option:
(a) Foreign Investment: Correct answer. It refers to the flow of capital from one country to another, typically by MNCs, to establish or expand business operations.
(b) Deficit Accounting: Incorrect. This relates to government financial management when expenses exceed revenue.

(c) Mutual Fund: A pool of investments from individuals managed by fund managers—not related to MNC investments.
(d) Corporate Fund: A general term, not specific to MNC investments across borders.

**S50. Ans.(d)**
**Sol.** In 2022, India recorded 1,68,491 deaths due to road accidents, as per the Ministry of Road Transport and Highways. This represents a significant public health concern, highlighting the need for improved road safety measures, stricter traffic regulations, and enhanced emergency response systems to reduce fatalities.
Explanation of each option:
(a) 11,68,491 – Incorrect. This is an unrealistic number as the total road accident fatalities in India have never reached this figure.
(b) 8,491 – Incorrect. This number is too low compared to the official reports, as road accident deaths in India are significantly higher.
(c) 68,491 – Incorrect. While this figure represents a high number of casualties, it is far below the actual number recorded in 2022.
(d) 1,68,491 – Correct answer. This is the official number of deaths reported due to road accidents in India in 2022, emphasizing the severity of road safety challenges.

**S51. Ans.**
**Sol.** A bone marrow biopsy is the most definitive test for diagnosing blood cancers like leukemia, lymphoma, and multiple myeloma. This procedure involves extracting a sample of bone marrow from the hip bone to examine abnormal blood cells and determine the presence of cancerous growth.
Explanation of each option:
(a) Bone marrow biopsy – Correct answer. It is used to evaluate blood cell production and detect abnormal cells that may indicate blood cancer.
(b) Endoscopy – Incorrect. Endoscopy is a diagnostic procedure used to examine the digestive tract, primarily for conditions like ulcers, tumors, and gastrointestinal bleeding, not blood cancer.
(c) Colposcopy – Incorrect. Colposcopy is a gynecological test used to examine the cervix for precancerous or cancerous lesions, mainly in cervical cancer screening.
(d) Colonoscopy – Incorrect. Colonoscopy is a procedure used to examine the colon and rectum for abnormalities like polyps, ulcers, or colorectal cancer, not blood-related malignancies.

**S52. Ans.**
**Sol.** Fluorosis is a dental condition caused by excessive fluoride intake during tooth development, leading to discoloration and mottling of the enamel. The severity ranges from mild white streaks to severe brown stains and pitting of the teeth.
Explanation of each option:
(a) Narcosis – Incorrect. Narcosis refers to a condition of altered mental state due to exposure to narcotics or deep-sea diving gases, not a dental disorder.
(b) Sarcoidosis – Incorrect. Sarcoidosis is an inflammatory disease that forms granulomas in organs like the lungs and skin, but it does not cause speckles on teeth.
(c) Filariasis – Incorrect. Filariasis is a parasitic disease caused by filarial worms, leading to swelling (elephantiasis), but it has no impact on dental health.
(d) Fluorosis – Correct answer. It occurs due to high fluoride consumption, particularly from drinking water, leading to tooth enamel damage.

**S53. Ans.**

**Sol.** After delivery, the uterus undergoes a gradual process of shrinking and returning to its original size, known as involution. This process involves reduction in uterine size, weight, and vascularity. It generally completes by 6 weeks postpartum, provided there are no complications. During this time, lochia (vaginal discharge) also resolves. This timeline is widely accepted in obstetrics and supported by both clinical guidelines and standard textbooks like DC Dutta and Williams Obstetrics.

Explanation for each option:

5 weeks: Incorrect. While uterine reduction is well underway by this time, complete involution usually takes a few more days to a week, making it slightly premature to declare completion.

6 weeks: This is the correct answer. Clinical studies and medical texts agree that complete uterine involution usually occurs by 6 weeks after childbirth, under normal physiological recovery.

7 weeks: Incorrect. Most women would already have completed involution by the sixth week, so selecting 7 weeks is an overestimation and not standard clinical practice.

8 weeks: Incorrect. By this time, the uterus has already involuted in most women. A prolonged involution time may indicate postpartum complications, hence this is not the usual duration.

**S54. Ans.**

**Sol.** A discrepancy between the gestational age by dates (LMP) and the clinical uterine size often indicates an error in calculating the expected gestational age. If the uterus is smaller than expected (20 weeks size at 24 weeks by LMP), the most common reason is incorrect LMP due to misremembering, irregular cycles, or late ovulation. Hydramnios and multiple pregnancies would typically cause the uterine size to be larger, not smaller. Gestational hypertension may affect fetal growth later but usually doesn't cause uterine size reduction this early.

Explanation for each option:

Wrong dates: This is the correct answer. It is very common for women to miscalculate their LMP or have irregular cycles, leading to overestimated gestational age. Uterine size lagging behind dates is typically due to such errors, especially when early ultrasound dating is unavailable.

Hydramnios: Incorrect. Hydramnios refers to excess amniotic fluid, which would usually cause the uterus to appear larger than expected for gestational age, not smaller.

Multiple pregnancies: Incorrect. In cases of twins or more, the uterine size is generally larger than normal due to increased intrauterine content, not smaller.

Gestational hypertension: Incorrect. Although gestational hypertension may lead to intrauterine growth restriction (IUGR), this usually affects fetal weight rather than causing the uterus to appear smaller at just 24 weeks.

**S55. Ans.**

**Sol.** Postpartum IUCD (PPIUCD) insertion is a key initiative under the National Family Planning Programme. It aims to provide immediate, long-term reversible contraception after delivery, mainly to promote spacing and reduce maternal mortality. CuT 380A is the device used, and it is offered at various public health facilities — including PHCs, CHCs, FRUs, not just district hospitals. Hence, option (b) is incorrect.

Explanation for each option:

initiative started to promote spacing method: Correct. PPIUCD aims at birth spacing and reducing unplanned pregnancies.

IUCD insertion is done only at district hospitals: Incorrect. IUCDs are inserted across multiple levels — from PHC to district hospitals — with trained personnel.

CuT 380A is inserted: Correct. CuT 380A is the commonly used IUCD for postpartum insertion, with a life span of 10 years.
to address unmet need of family planning: Correct. PPIUCD helps meet contraceptive needs immediately after delivery.
question not attempted: Not applicable.

**S56. Ans.**
**Sol.** Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Health Mission aimed at reducing maternal and neonatal mortality. In Low Performing States (LPS), the cash assistance to urban mothers is ₹ 1050 — this includes ₹ 600 for the mother and ₹ 450 for ASHA worker. The purpose is to promote institutional delivery and ensure better postnatal care. The rates are fixed as per Government of India guidelines.
Explanation for each option:
₹ 1050: This is the correct amount for urban beneficiaries in Low Performing States under JSY. The division is ₹ 600 for the mother and ₹ 450 for ASHA's support services.
₹ 1000: Incorrect. While close, it doesn't match the official disbursement rate fixed for urban LPS beneficiaries.
₹ 1400: Incorrect. ₹ 1400 is the amount provided to rural beneficiaries in LPS, not urban.
₹ 2000: Incorrect. No JSY category offers ₹ 2000 directly to any beneficiary under the current structure.

**S57. Ans.**
**Sol.** Meza Dam is located in Rajasthan and is constructed on the Kothari River. It is an important water resource used for irrigation and local water supply in Bhilwara district. The dam plays a vital role in supporting agriculture in the region, especially during dry seasons. It is often mentioned in Rajasthan's state-level GK and water resource development programs.
Explanation for each option:
Parvati River: Incorrect. Parvati River does not host the Meza Dam. It flows through other parts of Rajasthan and Madhya Pradesh.
Khari River: Incorrect. Though Khari is a tributary in Rajasthan, it is not associated with Meza Dam.
Kothari River: Correct. Meza Dam is situated on Kothari River and serves Bhilwara and surrounding areas.
Mansi River: Incorrect. This river is not linked to the Meza Dam project in Rajasthan.

**S58. Ans.**
**Sol.** The given data represents a simple categorical distribution between two groups: smokers and non-smokers. A pie chart is ideal for visualizing proportions or percentages of a whole — especially when total = 100. It effectively shows how much of the population belongs to each category. Since the total is 100, the division of 18 and 82 can be clearly shown as pie segments without any overlap.
Explanation for each option:
line diagram: Incorrect. Line diagrams are best for representing trends over time (e.g., annual rainfall, temperature changes). Not suitable for categorical comparison.
histogram: Incorrect. Histograms are used for continuous data, especially frequency distributions across intervals — not for comparing fixed categories.
pie chart: Correct. Pie charts are the most effective for comparing parts of a whole, especially when percentages or proportions are involved.
bar chart: Incorrect. Although bar charts can be used, pie charts are more visually appropriate when showing direct proportion between two groups.

**S59. Ans.**

**Sol.** The Rajasthan Hindi Granth Academy, a prestigious state-run institution, is located in Jaipur. It publishes and promotes textbooks, reference materials, and literary works in Hindi, especially for higher education. The academy supports government efforts to make Hindi the language of academic and professional instruction across Rajasthan. Its headquarters and primary operations are managed from Jaipur.

Explanation for each option:

Jodhpur: While a major city in Rajasthan, Jodhpur is not the official location of the Hindi Granth Academy. It houses other cultural institutions but not this one.

Kota: Known for engineering and medical coaching institutes, Kota does not host the academy.

Jaipur: Correct. As the state capital, Jaipur is the administrative and cultural hub where the academy is headquartered.

Alwar: This city is rich in heritage but is not related to the state's official Hindi Granth Academy.

**S60. Ans.**

**Sol.** Lathyrism is caused by prolonged consumption of Khesari dal (Lathyrus sativus), which contains the neurotoxin BOAA. This toxin leads to irreversible spastic paralysis, especially in lower limbs. Parboiling the dal before consumption reduces the toxin significantly. This is a simple household technique that prevents the condition in endemic areas where the dal is a staple food.

Explanation for each option:

heating: While heating may reduce toxins marginally, it is not effective in eliminating BOAA completely and is not recommended as a standalone method.

soaking: Soaking reduces some water-soluble compounds but is not reliable enough to detoxify BOAA to safe levels for consumption.

filtration: Filtration is more suitable for liquids and is not applicable to removing toxins from whole dal grains.

parboiling: Correct. This process involves soaking and steaming, which breaks down BOAA and makes the dal safer for consumption.

**S61. Ans.**

**Sol.** The National Population Stabilization Fund (NPSF) promotes innovative strategies for population control and family welfare. Two major initiatives under it are the Prerna Strategy, which incentivizes delaying childbirth and promoting spacing, and the Santushti Strategy, which partners with private sector providers for sterilization services. A National Helpline also exists to spread awareness. ASHA scheme, however, is part of the National Health Mission, not a direct NPSF initiative.

Explanation for each option:

Prerna strategy: Correct. Encourages young couples to delay the birth of the first child and maintain spacing between children.

ASHA scheme: Incorrect. While crucial for family planning at the grassroots level, ASHAs work under NRHM, not NPSF.

National Helpline: Correct. A toll-free helpline was introduced to disseminate family planning information.

Santushti strategy: Correct. It engages private providers to improve access to sterilization services in underserved areas.

**S62. Ans.**

**Sol.** Under the Employees' State Insurance (ESI) Act, 1948, the provision of medical care to insured persons is a joint responsibility of the central and state governments. The state government contributes 1/8th of the cost, while the rest is borne by the ESI Corporation. This cost-sharing model ensures affordable and quality healthcare to industrial workers and their families.

Explanation for each option:

1/8: Correct. State governments are responsible for 1/8th of the expenditure incurred on providing medical services under the ESI scheme.

3/8: Incorrect. This value is higher than what the state contributes under the act.

5/8: Incorrect. The majority of funding is from ESIC, not from state governments.

7/8: Incorrect. This amount is nearly the entire burden and does not match the legal framework of cost-sharing.

**S63. Ans.**

**Sol.** The Annapurna Rasoi Yojna is a flagship scheme of the Government of Rajasthan to provide nutritious, subsidized meals to the poor and needy. The official tagline of the scheme is: "Food for all, Respect for all". It reflects not only the commitment to end hunger but also to uphold the dignity of the underprivileged by ensuring access to quality food without discrimination.

Explanation for each option:

kitchen for all, food for all: Incorrect. Though related, this is not the official tagline of the scheme.

clean food, good health: Incorrect. While cleanliness and nutrition are promoted, this is not the program's motto.

food for all, respect for all: Correct. This is the official tagline of the Annapurna Rasoi Yojna, capturing its inclusive and respectful approach.

food for all, good health for all: Incorrect. This is a generalized public health goal, not the tagline for this specific scheme.

question not attempted: Not applicable

**S64. Ans.(c)**

**Sol.** Given:

A's weight is more than the weight of C,

A has the second highest weight.

E weighs more than A.

B weighs more than D.

From the given information following arrangement will be -

E > A > C >B>D

And as A is second highest. Therefore, E will be the highest.

**S65. Ans.**

**Sol.** 16 September: This is not the date for World Patient Safety Day.

17 September: Correct: World Patient Safety Day is observed on this date to raise awareness about patient safety.

18 September: This is not the correct date.

19 September: This is not the date for the observance.

**S66. Ans.**
**Sol.** Sun Temple: This is not featured on the Rs. 2000 note.
Mangalyaan: Correct: The Rs. 2000 note features the image of Mangalyaan to highlight India's scientific achievements.
Red Fort: The Red Fort is depicted on the Rs. 500 note.
Rani Ki Vav: This is depicted on the Rs. 100 note.

**S67. Ans.**
**Sol.** Sutlej: Sutlej is one of the five rivers of Punjab.
Yamuna: Correct: Yamuna is not part of the five rivers of Punjab; it flows through other regions in India.
Ravi: Ravi is one of the five rivers of Punjab.
Jhelum: Jhelum is also one of the five rivers.

**S68. Ans.**
**Sol.** Dr. S. Radhakrishnan: Correct: He was the first Vice President of India and later became the President.
Pandit Jawahar Lal Nehru: He was the first Prime Minister of India, not the Vice President.
Dr. S. D. Sharma: He served as the ninth President of India.
Dr. Rajendra Prasad: He was the first President of India.

**S69. Ans.**
**Sol.** Greeks - Sakas - Kushanas: Correct: The Greeks invaded first, followed by the Sakas, and then the Kushanas.
Greeks - Kushanas - Sakas: This does not represent the correct historical sequence.
Sakas - Greeks - Kushanas: The Sakas came after the Greeks.
Sakas - Kushanas - Greeks: This is not the correct chronological order of invasions.

**S70. Ans.**
**Sol.** Garden: While flowers are found in a garden, this does not align with the analogy. Pearls are not "found" in a necklace but are arranged in one, making "garden" an incorrect match.
Bouquet: Correct: A bouquet is an arrangement of flowers, just as a necklace is an arrangement of pearls. This is the correct analogy and the best fit for the relationship.
Petal: Petals are part of a flower, but the question seeks an arrangement of flowers, not a component of one. Thus, "petal" does not match the analogy.
Plant: A plant produces flowers, but this does not correspond to the arrangement relationship shown in the analogy between pearls and a necklace.

**S71. Ans.**
**Sol.** 20: This does not satisfy the total value of Rs. 16 with 40 coins.
24: This value results in a mismatch in the total coin count.
16: Correct: With 16 coins of 25 paise and 24 coins of 50 paise, the total is Rs. 16 with 40 coins.
22: This does not satisfy the conditions of the problem.

**S72. Ans.**
**Sol.** 50 percent: The calculated gain percentage exceeds 50 percent.
45.3 percent: This is lower than the actual gain percentage.
44.4 percent: This value does not match the calculations for the given conditions.
54.3 percent: Correct: Buying at 7/9 of the value and selling at 20% above results in a 54.3% gain.

**S73. Ans.**
**Sol.** 50 percent: The calculated gain percentage exceeds 50 percent.
45.3 percent: This is lower than the actual gain percentage.
44.4 percent: This value does not match the calculations for the given conditions.
54.3 percent: Correct: Buying at 7/9 of the value and selling at 20% above results in a 54.3% gain.

**S74. Ans.**
**Sol.** The National Population Policy (NPP) was established in 2000 with the goal of achieving a stable population by 2045 and focusing on population control and family planning.
Explanation of each option:
(a) 1978 – Incorrect. The NPP was not established in 1978. Instead, that year marked the beginning of the First National Population Policy in India, which was later replaced by the 2000 NPP.
(b) 2000 – Correct answer. The National Population Policy was established in 2000, setting long-term goals for India's population management.
(c) 2002 – Incorrect. The 2002 policy was an update and action plan for the 2000 NPP, but the NPP itself was adopted in 2000.
(d) 2010 – Incorrect. The National Population Policy was already in place by 2000, and there was no new NPP established in 2010.

**S75. Ans.**
**Sol.** The carrying capacity is the maximum population size that the environment can support sustainably, based on the available resources, without causing harm to the ecosystem.
Explanation of each option:
(a) Carrying Capacity – Correct answer. The carrying capacity refers to the largest population size that an area can support over the long term, considering available resources like food, water, and shelter.
(b) Population outgrowth – Incorrect. Population outgrowth refers to the rapid increase in population size, but it does not directly address the sustainable limit of resources.
(c) Null point – Incorrect. The null point is not related to population size or resources; it typically refers to a point of equilibrium or no net change in certain scientific contexts.
(d) Break-even – Incorrect. Break-even refers to the point at which resources used and produced balance out but does not directly address the sustainable population size.

**S76. Ans.**
**Sol.** Diphtheria is a bacterial communicable disease caused by Corynebacterium diphtheriae. It spreads from person to person through respiratory droplets, especially in crowded conditions. Symptoms include sore throat, fever, and formation of a thick gray membrane in the throat. It can lead to serious complications if not treated. Communicable diseases are those that can spread from one individual to another, often through air, contact, or vectors.

Explanation of each option:
(a) Diabetes – A non-communicable metabolic disorder where the body fails to regulate blood sugar properly. It is related to insulin function and not caused by infectious agents.
(b) Diphtheria – Correct Answer. A contagious bacterial infection spread via droplets. Preventable through vaccination (DPT).
(c) Hypertension – Also non-communicable, it refers to elevated blood pressure and is influenced by genetics, lifestyle, and diet.
(d) Kwashiorkor – A severe form of protein-energy malnutrition seen in children, especially in developing countries. It is due to dietary deficiency, not an infection.

**S77. Ans.**
**Sol.** Weight gain is not a common symptom of tuberculosis. TB typically causes weight loss due to the chronic infection and metabolic burden it places on the body. Other classic symptoms of TB include a persistent cough (often with sputum), low-grade fever especially at night, fatigue, and loss of appetite. The disease mainly affects the lungs but can spread to other organs.
Explanation of each option:
(a) Cough for three weeks or more – A hallmark sign of pulmonary TB. The cough may be dry or productive and may sometimes include blood.
(b) Fever, especially at night – Low-grade fevers with night sweats are classic TB symptoms, especially in active infection.
(c) Weight gain – Correct Answer. TB usually causes unintentional weight loss due to loss of appetite and systemic inflammation.
(d) Loss of appetite – Common in TB, especially in prolonged or untreated cases. It contributes to overall nutritional decline.

**S78. Ans.**
**Sol.** VVM stands for Vaccine Vial Monitor. It is a label placed on vaccine vials to track cumulative heat exposure over time. This helps determine if the vaccine is still safe to use. It changes color based on exposure to heat, ensuring the vaccine hasn't lost its effectiveness. This is critical for vaccines like oral polio vaccine (OPV), which are sensitive to heat.
Explanation of each option:
(a) Vaccine verification monitor – Incorrect; no such official term exists in vaccine cold chain logistics.
(b) Vaccine viability monitor – Close but not technically correct; VVM tracks heat exposure, not biological viability directly.
(c) Vaccine vial monitor – Correct Answer. An essential tool in vaccine management that helps health workers assess vaccine usability.
(d) None of these – Incorrect, as option (c) is the officially accepted and widely used full form of VVM.

**S79. Ans.**
**Sol.** The Vastus Lateralis muscle is the preferred site for intramuscular injections like DPT vaccine in infants because it is large, well-developed, and away from major nerves and blood vessels. This muscle is located on the front side of the thigh and allows for safe administration. Other gluteal muscles are avoided in infants due to the risk of sciatic nerve injury and underdeveloped muscle tissue. The use of the wrong site can lead to complications like nerve palsy or abscess formation.

Explanation of each option:
(a) Dorso gluteal Muscle – This site is close to the sciatic nerve, making it risky in infants. It may also have more fat, reducing vaccine absorption. WHO does not recommend this site for infants due to these concerns.
(b) Gluteus Maximus – This muscle is poorly developed in infants and carries a high risk of incorrect injection into fatty tissue. Improper absorption or nerve damage may result.
(c) Vastus Lateralis – Correct Answer. It is well-developed from birth, has fewer major nerves nearby, and is considered the safest site for infant vaccination. Health professionals are trained to use this site during immunization programs.
(d) Gluteus Medius – Although safer than gluteus maximus, it is still not the first choice in infants. It is sometimes used in older children or adults for vaccines like hepatitis B.



**S80. Ans.**
**Sol.** Sugarcane juice is not a recommended Home Available Fluid (HAF) during diarrhea because it is high in sugar and often contaminated when sold by street vendors. This can worsen dehydration by drawing more water into the intestines (osmotic diarrhea). On the other hand, lemon water, buttermilk, and coconut water are safe, affordable, and effective options for fluid and electrolyte replacement in mild to moderate diarrhea cases.
Explanation of each option:
(a) Lemon water – A good source of hydration and vitamin C, especially when mixed with salt and sugar. It supports mild fluid replacement in diarrhea. If made hygienically, it is safe and effective.
(b) Buttermilk – Helps restore beneficial gut bacteria and provides essential electrolytes. It also soothes the gut lining and prevents dehydration. It is commonly used in Indian households.
(c) Sugarcane juice – Correct Answer. While it provides instant energy, it is usually sold unpasteurized and can carry pathogens. It also contains high sugar levels, which can worsen diarrhea. Its use is not recommended by WHO or national health programs.
(d) Coconut water – Naturally rich in potassium, magnesium, and sodium. It is an excellent rehydration fluid in diarrhea, especially when ORS is not available. It is also easily digestible.

**S81. Ans.()**
**Sol.** According to India's National Immunization Schedule, the first dose of Vitamin A (1 lakh IU) is given at 9 months of age along with the measles vaccine. It plays a crucial role in preventing childhood blindness and enhancing immunity. From 12 months onward, subsequent doses of 2 lakh IU are given every 6 months up to 5 years of age. Administering the wrong dose may lead to toxicity or inefficacy.
Explanation of each option:
(a) 2 lakh IU – This is the standard dose given only after 12 months of age, every six months until the child turns five. Giving this high dose at 9 months may lead to side effects.
(b) 3 lakh IU – This dose exceeds the recommended levels and can lead to hypervitaminosis A, which causes symptoms like vomiting, bulging fontanelle, or liver issues. It is not used in any age group under standard guidelines.

(c) 1 lakh IU – Correct Answer. As per WHO and India's national guidelines, this is the first dose given at 9 months to strengthen immunity and prevent vitamin A deficiency.
(d) 50,000 IU – This is below the therapeutic dose for any age in the immunization program. It is not sufficient to prevent vitamin A-related complications like xerophthalmia.

**S82. Ans.**
**Sol.** The described symptoms — prolonged fever, abdominal discomfort, bradycardia (slow pulse), delirium, and rose spots on the abdomen — are classic signs of Typhoid fever, also known as enteric fever. It is caused by Salmonella typhi and transmitted through contaminated food and water. Diagnosis is often confirmed with Widal test or blood culture.
Explanation of each option:
(a) Smallpox – Caused by the variola virus, it presents with high fever followed by a progressive pustular rash. However, abdominal tenderness and rose-colored rash are not typical features.
(b) Measles – Presents with fever, cough, conjunctivitis, and a maculopapular rash that starts on the face. Koplik spots are diagnostic, but rose-colored rash or slow pulse are not typical.
(c) Tetanus – A nervous system disorder characterized by muscle rigidity and spasms. It doesn't cause rash or abdominal tenderness. Lockjaw is a hallmark feature.
(d) Typhoid – Correct Answer. Characterized by step-ladder fever pattern, rose spots, slow pulse (Faget sign), abdominal pain, and sometimes delirium. Caused by Salmonella typhi and common in low-hygiene areas.

**S83. Ans.**
**Sol.** Leprosy (also known as Hansen's disease) is a chronic infectious disease caused by Mycobacterium leprae. It primarily affects the skin, peripheral nerves, eyes, and nasal mucosa. Transmission occurs through prolonged close contact and respiratory droplets. Early diagnosis and multidrug therapy (MDT) can prevent disability and halt transmission.
Explanation of each option:
(a) Mycobacterium leprae – Correct Answer. An acid-fast bacillus that grows slowly and is primarily neurotropic. It cannot be cultured in artificial media and causes skin patches with sensory loss.
(b) Mycobacterium tuberculosis – Responsible for tuberculosis, especially affecting lungs. Though related to M. leprae, it does not cause leprosy.
(c) Rotavirus – A virus that causes diarrhea, especially in infants and young children. It affects the intestinal lining and is unrelated to leprosy.
(d) Mosquito – A vector for diseases like malaria, dengue, and chikungunya. Leprosy is not vector-borne and has no mosquito involvement.

**S84. Ans.**
**Sol.** Streptomycin is contraindicated in pregnancy due to its potential to cause ototoxicity (hearing loss) in the fetus. It crosses the placenta and affects the developing auditory nerve. Other first-line drugs like Isoniazid, Ethambutol, and Pyrazinamide are generally considered safe under medical supervision during pregnancy.
Explanation of each option:
(a) Streptomycin – Correct Answer. An aminoglycoside antibiotic known to be ototoxic and nephrotoxic. In pregnancy, it can cause congenital deafness and is avoided unless absolutely necessary.
(b) Isoniazid – A frontline anti-TB drug considered safe during pregnancy. It is given along with pyridoxine (Vitamin B6) to prevent peripheral neuropathy.

(c) Ethambutol – Also considered relatively safe in pregnancy, though optic neuritis is a rare side effect. Regular visual monitoring is recommended.
(d) Pyrazinamide – Included in national TB control programs during pregnancy. Though data is limited, it is not contraindicated and is often used in standard regimens.

**S85. Ans.**
**Sol.** The fundal height roughly correlates with gestational age in weeks from about 20–36 weeks. At 24 weeks, the uterine fundus is typically 1–2 fingers above the umbilicus. This measurement helps assess fetal growth and amniotic fluid volume. Deviations from expected levels may suggest growth restriction or polyhydramnios/oligohydramnios. Measuring fundal height is a standard part of antenatal checkups, especially in low-resource settings.
Explanation of each option:
(a) At the level of umbilicus – This is accurate for 20 weeks of gestation, not 24 weeks. After 20 weeks, the uterus starts to rise above the umbilicus.
(b) At the level of xiphi sternum – The fundus reaches this level at around 36 weeks, just before engagement of the fetal head.
(c) At the level of symphysis pubis – This is seen at around 12 weeks of pregnancy. Before that, the uterus is still a pelvic organ.
(d) Above the umbilicus – Correct. At 24 weeks, the fundus rises to about 1–2 cm above the umbilicus, consistent with the gestational age.

**S86. Ans.**
**Sol.** The term "show" refers to the blood-tinged, sticky vaginal discharge that typically occurs as a pregnant woman approaches labor. It results from the dislodgement of the mucus plug from the cervix, which is mixed with small amounts of blood due to cervical capillary rupture during effacement and dilation. It is an early sign of the onset of labor. Unlike vaginal bleeding, the show is minimal, mucous in consistency, and pink or brownish in color.
Explanation of each option:
(a) Show – Correct. It is a sign of impending labor, due to the release of the mucus plug mixed with blood. Indicates cervical changes.
(b) Goodell's sign – Refers to softening of the cervix, usually seen around 6–8 weeks of pregnancy, but it does not involve discharge.
(c) Osiander's sign – Refers to increased pulsation of uterine arteries felt through the lateral vaginal fornices, not related to discharge.
(d) Hegar's sign – Indicates softening of the uterine isthmus, an early pregnancy sign, not associated with any discharge.

**S87. Ans.**
**Sol.** During every antenatal checkup (ANC), essential tests include Hemoglobin (to detect anemia), Urine sugar (to screen for gestational diabetes), and Urine protein (to detect pre-eclampsia). These are critical in ensuring the health of both the mother and the fetus. Early detection allows timely management of complications. Hemoglobin levels indicate oxygen-carrying capacity, while urine analysis helps detect metabolic and renal conditions that commonly arise in pregnancy.
Explanation of each option:
(a) – HCG is used early in pregnancy to confirm conception but is not monitored at every ANC visit.
(b) – While blood sugar is important, routine blood tests are not done at every ANC visit unless clinically indicated.

(c) – Correct. These three parameters—Hb, urine sugar, and protein—are standard at every antenatal visit for ongoing maternal-fetal surveillance.
(d) – HPL (Human Placental Lactogen) is a placental hormone, not a routine ANC investigation, and used more for research or specific cases.

**S88. Ans.**
**Sol.** When the soft and irregular part of the fetus is felt in the pelvic grip (Leopold's maneuver), it usually suggests the breech presentation, where the fetal buttocks or feet are entering the pelvis first instead of the head. The fetal head is firm, round, and ballotable, whereas the breech feels irregular and softer. Identifying presentation is vital for delivery planning and may lead to cesarean if vaginal breech delivery poses risks.
Explanation of each option:
(a) Vertex presentation – In this case, the fetal head is in the pelvis, which is hard, round, and well-defined, not soft and irregular.
(b) Breech presentation – Correct. The soft, irregular mass felt during pelvic grip corresponds to the buttocks and feet, indicating breech.
(c) Transverse lie – In this, the fetus lies horizontally, and neither the head nor breech is felt in the pelvis; instead, the abdomen feels broad.
(d) Occipito posterior position – This refers to the position of the fetal head, not the presenting part. The head is still presenting but facing the mother's spine.

**S89. Ans.**
**Sol.** Exclusive breastfeeding means the infant receives only breast milk, with no other liquids or solids, not even water, except for oral rehydration solutions, drops, or syrups (vitamins, minerals, medicines). This is recommended by WHO and UNICEF for the first 6 months of life to ensure optimal growth, immunity, and development. Breast milk contains all essential nutrients in appropriate amounts and provides protective antibodies.
Explanation of each option:
(a) Feeding the infant with extra milk – Incorrect. Any addition of milk (animal or formula) other than breast milk means it is not exclusive.
(b) The infant receives only breast milk and nothing else – Correct. This is the official WHO definition of exclusive breastfeeding.
(c) Feeding the infant with breast milk and water only – Not allowed, even water is withheld, as breast milk alone is sufficient for hydration.
(d) Exclude breast milk from young infants' feeds – Completely wrong. This would mean no breastfeeding, which is not recommended for infants under 6 months.

**S90. Ans.**
**Sol.** Postpartum hemorrhage (PPH) is the leading cause of maternal death worldwide, especially in low-resource settings. It can result from uterine atony, retained placenta, or birth trauma, leading to severe blood loss after delivery. Without timely management like uterotonics and fluid replacement, it can be fatal. According to WHO, hemorrhage accounts for about 25–30% of maternal deaths globally, making it the most critical cause to monitor and prevent.

Explanation of each option:
(a) Sepsis – A serious cause of maternal morbidity and mortality, but ranks below hemorrhage in frequency.
(b) Toxemia – Refers to eclampsia/pre-eclampsia, which is significant but not the most frequent cause.
(c) Asphyxia – Refers to fetal, not maternal distress. It affects newborns more than mothers during childbirth.
(d) Hemorrhage – Correct. It is the most common and immediate threat to maternal life during or after delivery.

**S91. Ans.**
**Sol.** For preterm or very low birth weight infants (less than 1000 grams), the recommended dose of Vitamin K1 is 0.5 mg intramuscularly. Vitamin K is essential to prevent Vitamin K Deficiency Bleeding (VKDB), which can lead to serious internal bleeding in neonates. The dose is carefully adjusted for body weight, as excessive dosing in preterms can cause adverse effects. The standard dose for term infants is 1 mg, but low-birth-weight babies require half.
Explanation of each option:
(a) 0.5 mg – Correct. Recommended IM dose for newborns <1000 g, per AAP and WHO guidelines.
(b) 1 mg – Standard dose for full-term babies, not appropriate for extremely low birth weight infants.
(c) 1.5 mg – Higher than recommended. No standard guideline supports this dose for newborns.
(d) 2 mg – Excessive dose for neonates, especially preterm; could cause toxicity or complications.

**S92. Ans.**
**Sol.** The placenta is expected to be delivered within 30 minutes after the birth of the baby during the third stage of labor. If the placenta is not delivered within this time frame, it is considered retained placenta, and the case should be referred to a higher healthcare facility for manual removal or emergency management. Delay beyond 30 minutes increases the risk of postpartum hemorrhage, infection, and uterine inversion. Timely intervention is crucial for the safety of the mother.
Explanation of each option:
(a) 15 mins – Too early to classify as retained placenta; normal delivery may take slightly longer.
(b) 30 min – Correct. WHO and national guidelines define retained placenta if not delivered within 30 minutes.
(c) 45 mins – Waiting this long increases the risk of complications, especially in low-resource settings.
(d) 1 hour – Delayed intervention at this point may result in life-threatening hemorrhage or shock.

**S93. Ans.**
**Sol.** Episiotomy is a surgical cut made at the perineum to enlarge the vaginal opening during delivery. It is indicated when the fetal head crowns and remains at the vulva without receding during contractions. This implies imminent delivery and the perineum is under stress, potentially leading to tearing. Performing episiotomy at this stage helps prevent uncontrolled lacerations and facilitates safer delivery.
Explanation of each option:
(a) – Receding of the head suggests that labor is not yet in the final stage, so episiotomy is not needed at this point.
(b) – Correct. When the head crowns and doesn't recede, episiotomy can be done to prevent perineal trauma.
(c) – Crowning has not occurred yet; hence, episiotomy at this point is premature and unnecessary.
(d) – Without crowning, even if the head doesn't recede, episiotomy is not indicated, as the perineal stretch is insufficient.

**S94. Ans.**
**Sol.** Active Management of the Third Stage of Labour (AMTSL) is recommended for all women regardless of parity or obstetric history. It includes administration of uterotonics (e.g., oxytocin), controlled cord traction, and uterine massage to help deliver the placenta and reduce blood loss. AMTSL significantly reduces the risk of postpartum hemorrhage, a leading cause of maternal death globally. It is a standard practice in both institutional and skilled birth settings.
Explanation of each option:
(a) – Although high-risk women benefit from AMTSL, restricting it only to them denies preventive care to others.
(b) – Primipara (first-time mothers) are not the only group who may bleed; hence not limited to them.
(c) – Multiparas (women with previous deliveries) have a higher risk, but still, AMTSL should be given to all.
(d) – Correct. AMTSL is a universal protocol for all deliveries to prevent PPH and ensure safe maternal outcomes.

**S95. Ans.**
**Sol.** In vertex presentation, the fetal head is fully flexed, and the occiput leads the way through the birth canal. This position allows the smallest diameter of the fetal head (suboccipitobregmatic) to pass through the maternal pelvis. It facilitates smooth and safe vaginal delivery and is associated with the least number of complications. Most spontaneous vaginal deliveries occur in this presentation. It is considered the most natural and optimal fetal position for childbirth.
Explanation of each option:
(a) Vertex presentation – Correct. It is the most common and favorable presentation for vaginal delivery, reducing labor complications and minimizing maternal and fetal risk.
(b) Transverse lie – The fetal long axis lies perpendicular to the mother's; vaginal delivery is not possible unless the fetus rotates, usually requiring cesarean section due to risks of cord prolapse and uterine rupture.
(c) Frank breech presentation – In this position, the fetal buttocks present first with legs extended upward. It increases risks like cord prolapse, birth injury, and often necessitates C-section for safe delivery.
(d) Posterior position of the fetal head – In occiput posterior, the fetal head faces the mother's spine, which causes prolonged, painful labor and may require instrumental delivery or cesarean in some cases.

**S96. Ans.**
**Sol.** True labor pain is defined by contractions that progressively increase in frequency, intensity, and duration and are not relieved by rest or medications. These contractions result in cervical effacement and dilation, indicating the start of active labor. The pain typically starts in the back and radiates to the front abdomen. Unlike false labor, true labor leads to the actual progression of childbirth and requires hospital care.
Explanation of each option:
(a) – Correct. This option reflects the typical features of true labor—persistent, intensifying uterine contractions with cervical changes that indicate active labor has begun.
(b) – Pain that remains unchanged in intensity and pattern is more likely a sign of false labor or early discomfort and does not indicate progression toward delivery.
(c) – This is an incomplete description. True labor also involves increasing duration of contractions, which is missing in this option.
(d) – These signs resemble false labor (e.g., Braxton Hicks contractions), where pain may be strong but resolves with rest and doesn't cause cervical dilation.

**S97. Ans.**

**Sol.** Striae gravidarum are pinkish or reddish stretch marks commonly appearing on the abdomen, breasts, hips, and thighs during pregnancy. They are caused by the rapid stretching of the skin and hormonal influences like increased cortisol. These marks are common in the second or third trimester. They may be itchy or slightly raised initially. Over time, these marks fade and become white or silvery, called striae albicans.

Explanation of each option:

(a) Linea nigra – This is a dark vertical line running from the pubic area to the umbilicus seen during pregnancy due to increased melanin. It is not a stretch mark and does not involve any linear tearing of the skin.

(b) Linea albicans – Not a recognized medical term. It appears to be a confusion with striae albicans, which refers to faded stretch marks.

(c) Striae gravidarum – Correct. These are the reddish or pink stretch marks that develop during pregnancy due to hormonal and mechanical skin stretching.

(d) Striae albicans – These are the older, whitish stretch marks that represent the healed phase of striae gravidarum. They typically appear postpartum.

**S98. Ans.**

**Sol.** Fetal heart sounds are a positive (conclusive) sign of pregnancy, as they directly confirm the presence of a viable fetus. These sounds can be heard using a Doppler device as early as 10–12 weeks or with a fetoscope by 18–20 weeks. Unlike presumptive or probable signs, fetal heart sounds are not influenced by other conditions, making them an objective indicator of pregnancy.

Explanation of each option:

(a) Hegar's sign – Refers to softening of the lower uterine segment, a probable sign of pregnancy but not conclusive.

(b) Osiander's sign – Increased pulsation in the lateral fornices, considered a probable sign due to increased blood flow.

(c) Fetal heart sound's – Correct. A positive sign, as it is an irrefutable confirmation of a living fetus.

(d) Morning sickness – A presumptive sign based on symptoms experienced by the woman, but it can occur in other conditions too.

**S99. Ans.**

**Sol.** Prolactin, secreted by the anterior pituitary gland, is the primary hormone responsible for milk production (lactogenesis) in the mammary glands after childbirth. It stimulates the alveolar cells in the breasts to synthesize and secrete milk. Its levels rise significantly after delivery, especially when nipple stimulation continues through breastfeeding. Prolactin also suppresses ovulation in lactating women by inhibiting gonadotropins.

Explanation of each option:

(a) Oxytocin – Involved in milk ejection (let-down reflex), not milk secretion. It is released by the posterior pituitary.

(b) Progesterone – Important for maintaining pregnancy, but it inhibits milk secretion before delivery.

(c) Estrogen – Promotes breast development during pregnancy but, like progesterone, inhibits lactation until after birth.

(d) Prolactin – Correct. Directly stimulates the production and secretion of breast milk post-delivery.

**S100. Ans.**

**Sol.** The most common complaint reported by women using intrauterine contraceptive devices (IUCDs) is vaginal bleeding, especially during the first few months. It may present as intermenstrual bleeding, heavier periods (menorrhagia), or prolonged bleeding. This is often due to endometrial irritation by the device. Most cases are self-limiting, but persistent bleeding may require IUCD removal or switching to another contraceptive method.

Explanation of each option:

(a) Vaginal bleeding – Correct. The most frequently reported side effect with IUCDs, especially copper-T, due to irritation of the endometrium.

(b) Pelvic infection – Though possible, especially shortly after insertion, it is less common with proper aseptic technique.

(c) Uterine perforation – A rare but serious complication, occurring in less than 1 per 1000 insertions; not a common complaint.

(d) Abdominal pain – Mild cramping may occur initially but is generally transient and not the most frequent issue reported.

**S101. Ans.**

**Sol.** Oligospermia refers to a low sperm count, defined as fewer than 15–20 million sperm per milliliter of semen, according to WHO standards. This condition can result from hormonal imbalance, varicocele, infections, or lifestyle factors such as smoking and alcohol use. It may reduce fertility potential in males but can often be treated with medication, lifestyle changes, or assisted reproductive techniques.

Explanation of each option:

(a) Aspermia – Refers to the complete absence of semen during ejaculation, not just low sperm count. It is a more severe fertility issue.

(b) Oligospermia – Correct. Refers to sperm count below 20 million/mL, indicating reduced sperm production.

(c) Azoospermia – Refers to no sperm in semen at all, which is a more critical form of male infertility than oligospermia.

(d) Asthenospermia – Describes reduced sperm motility, not a low sperm count. Sperm are present but move sluggishly, affecting fertilization.

**S102. Ans.**

**Sol.** Emergency contraceptive pills (like Levonorgestrel) are most effective within 72 hours, but can be taken up to 120 hours (5 days) after unprotected sex. However, their efficacy decreases with time. The sooner they are taken, the better the prevention rate. Ulipristal acetate (Ella) and Copper IUDs are also used for emergency contraception and are effective within the 5-day window.

Explanation of each option:

(a) 24 hrs – Effectiveness is highest if taken within this time, but the window for action is longer.

(b) 48 hrs – Still effective, but does not represent the maximum allowed period.

(c) 72 hrs – Common limit for Levonorgestrel-based pills, but some options work up to 120 hrs.

(d) 120 hrs – Correct. Emergency contraceptives, including Copper IUDs and Ulipristal, can prevent pregnancy if taken within this time.

**S103. Ans.**

**Sol.** Vasectomy is a permanent method of male sterilization where the vas deferens (sperm-carrying tubes) are cut and sealed to prevent sperm from entering the semen. It is a minor outpatient surgical procedure, highly effective for birth control. It doesn't affect sexual function or hormone levels. Recovery is quick, and the procedure is nearly 100% effective after semen is confirmed to be sperm-free post-surgery.

Explanation of each option:

(a) Tubectomy – Refers to female sterilization, where the fallopian tubes are cut or blocked to prevent fertilization.

(b) Vasectomy – Correct. This is the standard surgical procedure for male sterilization, preventing sperm release.

(c) Salpingectomy – Refers to surgical removal of the fallopian tubes, often done in cases of ectopic pregnancy or infection.

(d) None of these – Incorrect, because vasectomy is the correct and well-known term for male sterilization.

**S104. Ans.**

**Sol.** Injectable contraceptives like Depo-Provera (DMPA) work through multiple mechanisms. They primarily suppress ovulation by preventing the LH surge and reducing FSH levels, which halts follicular development. They also thicken cervical mucus, making it hard for sperm to reach the egg, and alter the endometrium, reducing the chances of implantation. Additionally, they may slow down the movement of the ovum through the fallopian tubes, enhancing contraceptive efficacy.

Explanation of each option:

(a) Preventing the LH surge and lowering FSH and LH – This is the primary mechanism. LH and FSH are essential for follicle maturation and ovulation. Suppressing these hormones prevents the release of an ovum, stopping pregnancy from occurring at the first step.

(b) Thickening the cervical mucous and rendering the endometrium less suitable – This is the secondary mechanism. The thick mucus acts as a barrier to sperm, and the thin endometrium is unsuitable for implantation, even if fertilization occurs.

(c) Hindering the rate of ovum transport – Slowing ovum transport means that the timing between ovulation and fertilization is disturbed, lowering the chance of successful conception. Although not the main mechanism, it contributes to efficacy.

(d) All of these – Correct. Injectable contraceptives act via all three mechanisms, making them highly effective and long-acting methods for birth control.

**S105. Ans.**

**Sol.** All the options listed are recognized as safe and reliable forms of male contraception. Condoms are temporary, barrier-based, and protect against STIs. Vasectomy is a permanent yet simple surgical method. Abstinence, though difficult for many to maintain consistently, is 100% effective when followed strictly. Each method has its own context, suitability, and reliability, depending on personal needs and goals.

Explanation of each option:

(a) Use of condom – Condoms are widely accessible, reversible, and effective if used properly. They also provide dual protection by preventing both pregnancy and sexually transmitted infections (STIs), including HIV.

(b) Vasectomy – Vasectomy is a permanent method of contraception where the vas deferens are cut or sealed, preventing sperm from entering semen. It's simple, safe, done under local anesthesia, and has very high effectiveness, though not easily reversible.

(c) Abstinence – This is the only method that is 100% effective in preventing pregnancy and STIs if practiced consistently. However, it may not be practical or sustainable for all individuals over the long term.

(d) All of these – Correct. Each of these methods—condoms, vasectomy, and abstinence—qualify as safe and reliable, with variations in duration and personal preference.