

INI CET Community Medicine

Sample Paper – 6

Duration: 14 Minutes

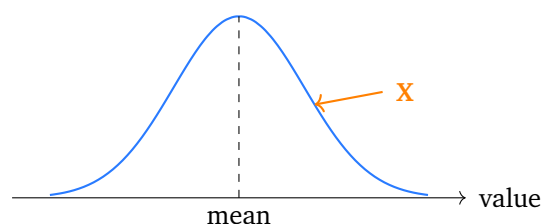
Maximum Marks: 15

Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Community Medicine (Preventive and Social Medicine) content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- The **15-question** length matches the number of Community Medicine items you actually meet in the real 200-question paper.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option, applying epidemiological reasoning and current national health programme facts.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Epidemiology and Biostatistics

- Q1.** In the normal (Gaussian) distribution shown, the point marked **X** lies one standard deviation to the right of the mean. The proportion of all observations lying within the range $\text{mean} \pm 1$ standard deviation is approximately:



(A) 50%



- (B) 68.3%
- (C) 95.4%
- (D) 99.7%

Q2. In a perfectly symmetrical normal distribution, which relationship between the measures of central tendency is correct?

- (A) Mean > median > mode
- (B) Mode > median > mean
- (C) Mean = median = mode
- (D) Median is twice the mode

Q3. The measure of dispersion that is calculated as the square root of the variance is the:

- (A) Standard deviation
- (B) Range
- (C) Mean deviation
- (D) Interquartile range

Communicable Diseases

Q4. The oral polio vaccine (OPV) used in the national immunisation programme is which type of vaccine?

- (A) Killed (inactivated) whole-virus vaccine
- (B) Toxoid
- (C) Live attenuated vaccine
- (D) Subunit (component) vaccine

Q5. Under the Pulse Polio Immunisation programme, oral polio vaccine is administered on National Immunisation Days to all children below which age?

- (A) Below 1 year



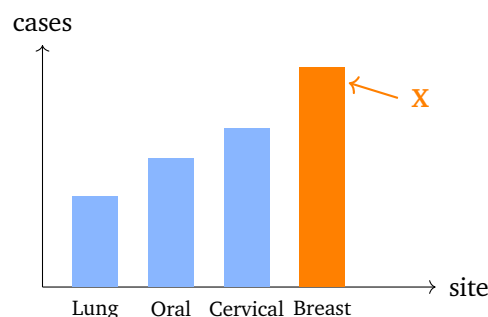
- (B) Below 3 years
- (C) Below 5 years
- (D) Below 10 years

Q6. The surveillance strategy used to detect wild poliovirus circulation for the polio eradication programme is surveillance of:

- (A) Acute febrile illness
- (B) Acute flaccid paralysis (AFP)
- (C) Acute respiratory infection
- (D) Acute watery diarrhoea

Non-communicable Diseases and Nutrition

Q7. The bar chart shows the leading cancer sites among Indian women. The tallest bar (marked X), representing the most common cancer among women in India, is:



- (A) Lung cancer
- (B) Oral cancer
- (C) Cervical cancer
- (D) Breast cancer

Q8. The low-cost screening test recommended for cervical cancer in India's community and primary-care settings is:

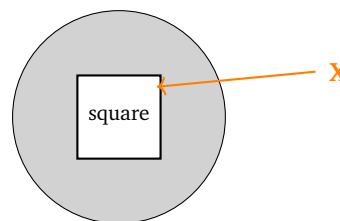
- (A) Visual inspection with acetic acid (VIA)
- (B) Mammography



- (C) Prostate-specific antigen (PSA) testing
- (D) Colonoscopy

Maternal, Child Health and Family Planning

- Q9.** In the cold chain, vaccines held in the ice-lined refrigerator (ILR) at a primary health centre must be stored at which temperature range?
- (A) -20°C
 - (B) 0°C
 - (C) $+2$ to $+8^{\circ}\text{C}$
 - (D) $+15$ to $+25^{\circ}\text{C}$
- Q10.** The vaccine vial monitor (VVM) shown consists of an inner square set within an outer reference circle. The vaccine is safe to use only when the inner square is:



inner square vs outer circle

- (A) Darker than the surrounding circle
 - (B) Lighter than the surrounding circle
 - (C) Exactly the same colour as the circle
 - (D) Completely absent
- Q11.** Which vaccine in the national immunisation schedule is the most heat-sensitive and must be kept frozen in the deep freezer at the district store?
- (A) Oral polio vaccine (OPV)
 - (B) BCG
 - (C) DPT
 - (D) Tetanus toxoid



Environmental and Occupational Health

- Q12.** The sanitary latrine promoted for rural India under the Swachh Bharat Mission, which uses two pits filled alternately so the rested pit content can be safely emptied, is the:
- (A) Bore-hole latrine
 - (B) Twin-pit pour-flush water-seal latrine
 - (C) Trench latrine
 - (D) Service (bucket) latrine
- Q13.** In sewage treatment, the stage in which dissolved and colloidal organic matter is removed by microbial action, using processes such as the activated sludge process or trickling filters, is:
- (A) Preliminary treatment
 - (B) Primary treatment
 - (C) Tertiary treatment
 - (D) Secondary (biological) treatment

Health Programmes, Demography and Health Systems

- Q14.** The National Health Mission (NHM) is delivered through two sub-missions. These two verticals are the:
- (A) National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM)
 - (B) Reproductive and Child Health (RCH) and Revised National Tuberculosis Control Programme (RNTCP)
 - (C) Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM)
 - (D) National AIDS Control Organisation (NACO) and National Vector Borne Disease Control Programme (NVBDCP)



- Q15.** Within the National Health Mission, the flagship programme covering safe motherhood, newborn care, child survival and family planning is abbreviated “RCH”. This stands for:
- (A) Rural Community Health
 - (B) Registered Child Healthcare
 - (C) Rapid Cure Health
 - (D) Reproductive and Child Health



Detailed Solutions**Q1.****Solution**

Concept – the normal distribution: Observations cluster symmetrically around the mean, and fixed proportions lie within set multiples of the standard deviation (SD).

Step 1 – recall the empirical rule: The range $\text{mean} \pm 1 \text{ SD}$ captures about 68.3% of all observations.

Step 2 – extend the rule: $\text{Mean} \pm 2 \text{ SD}$ covers about 95.4%, and $\text{mean} \pm 3 \text{ SD}$ covers about 99.7%.

Why the other options are wrong:

- A, 50%: only half of the curve lies on one side of the mean, not within $\pm 1 \text{ SD}$.
- C, 95.4%: this is $\text{mean} \pm 2 \text{ SD}$.
- D, 99.7%: this is $\text{mean} \pm 3 \text{ SD}$.

Final Answer: 68.3% $\Rightarrow$ **B**

Answer: (B) [Go Back to Q1](#)

Q2.**Solution**

Concept – central tendency in a symmetrical curve: Mean, median and mode describe the centre of a distribution.

Step 1 – apply symmetry: In a perfectly symmetrical normal distribution the three measures fall at the same central point, so **mean = median = mode**.

Step 2 – contrast with skew: Any inequality between them signals a skewed (asymmetrical) distribution.

Why the other options are wrong:

- A, $\text{mean} > \text{median} > \text{mode}$: indicates positive (right) skew.
- B, $\text{mode} > \text{median} > \text{mean}$: indicates negative (left) skew.
- D, median twice the mode: no such fixed relationship exists.

Final Answer: $\text{Mean} = \text{median} = \text{mode} \Rightarrow$ **C**

Answer: (C) [Go Back to Q2](#)



Q3.

Solution

Concept – measures of dispersion: Dispersion tells us how spread out the data are around the mean.

Step 1 – define variance: Variance is the mean of the squared deviations from the mean.

Step 2 – take the square root: The **standard deviation** is the square root of the variance, returning the spread to the original units.

Why the other options are wrong:

- B, range: the difference between the highest and lowest value only.
- C, mean deviation: the average of the absolute deviations, not the square-root of variance.
- D, interquartile range: the spread of the middle 50% of values.

Final Answer: Standard deviation $\Rightarrow$

Answer: (A) [Go Back to Q3](#)

Q4.

Solution

Concept – polio vaccines: Two vaccines protect against poliomyelitis, and they differ in type.

Step 1 – classify OPV: Oral polio vaccine is a **live attenuated** (Sabin) vaccine given by mouth.

Step 2 – contrast with IPV: Inactivated polio vaccine (Salk) is a killed vaccine given by injection.

Why the other options are wrong:

- A, killed whole-virus: describes IPV, not OPV.
- B, toxoid: applies to tetanus and diphtheria, not polio.
- D, subunit: applies to vaccines such as hepatitis B, not OPV.

Final Answer: Live attenuated vaccine $\Rightarrow$

Answer: (C) [Go Back to Q4](#)



Q5.

Solution

Concept – Pulse Polio Immunisation: Supplementary OPV doses are given to the whole eligible child population on fixed days.

Step 1 – state the age group: On National Immunisation Days, OPV is given to all children **below 5 years**, regardless of previous doses.

Step 2 – rationale: Repeated mass dosing rapidly raises herd immunity and interrupts wild virus transmission.

Why the other options are wrong:

- A and B, below 1 or below 3 years: too narrow; the campaign covers all under-fives.
- D, below 10 years: wider than the defined target age.

Final Answer: Below 5 years ⇒

Answer: (C) [Go Back to Q5](#)

Q6.

Solution

Concept – surveillance for polio: Detecting every possible case is central to eradication and certification.

Step 1 – name the strategy: Surveillance of **acute flaccid paralysis (AFP)** in children under 15 years is the core method; every AFP case is investigated with stool testing.

Step 2 – certification link: Sensitive AFP surveillance, with no wild virus detected, supported India's polio-free certification by the WHO in 2014.

Why the other options are wrong:

- A, acute febrile illness: too non-specific for polio surveillance.
- C, acute respiratory infection: relevant to influenza-type surveillance.
- D, acute watery diarrhoea: relevant to cholera and diarrhoeal disease surveillance.

Final Answer: Acute flaccid paralysis (AFP) ⇒

Answer: (B) [Go Back to Q6](#)



Q7.

Solution

Concept – cancer epidemiology in India: The commonest cancers differ by sex and are tracked by the National Cancer Registry.

Step 1 – read the chart: The tallest bar marked X is **breast cancer**, now the leading cancer among Indian women.

Step 2 – context: Cervical cancer is the second commonest; both are targets of the national NCD screening programme.

Why the other options are wrong:

- A, lung cancer: a leading cancer in men, lower among women.
- B, oral cancer: strongly linked to tobacco, but not the top site in women.
- C, cervical cancer: very common, but ranks below breast cancer overall.

Final Answer: Breast cancer $\Rightarrow$

Answer: (D) [Go Back to Q7](#)

Q8.

Solution

Concept – cervical cancer screening: A community screening test must be cheap, simple and feasible at primary level.

Step 1 – name the test: **Visual inspection with acetic acid (VIA)** is the recommended low-cost method; acetowhite areas flag precancerous change.

Step 2 – programme fit: VIA can be done by trained health workers without laboratory support, ideal for population screening in India.

Why the other options are wrong:

- B, mammography: used for breast, not cervical, screening.
- C, PSA testing: a prostate cancer marker in men.
- D, colonoscopy: used for colorectal cancer screening.

Final Answer: Visual inspection with acetic acid (VIA) $\Rightarrow$

Answer: (A) [Go Back to Q8](#)



Q9.

Solution

Concept – the cold chain: Vaccines must stay within defined temperatures from manufacture to use.

Step 1 – state the ILR range: At the primary health centre, the ice-lined refrigerator keeps most vaccines at **+2 to +8 °C**.

Step 2 – distinguish deep freezer: The deep freezer at -15 to -25 °C is reserved for storing OPV stock and making ice packs, not for the ILR.

Why the other options are wrong:

- A, -20 °C: the deep-freezer range, not the ILR.
- B, 0 °C: risks freezing sensitive vaccines such as DPT.
- D, $+15$ to $+25$ °C: room temperature, unsafe for vaccine storage.

Final Answer: $+2$ to $+8$ °C $\Rightarrow$ **C**

Answer: (C) [Go Back to Q9](#)

Q10.

Solution

Concept – the vaccine vial monitor (VVM): The VVM is a heat-sensitive label showing cumulative heat exposure.

Step 1 – read the monitor: The vaccine is usable only while the **inner square is lighter than the outer reference circle**.

Step 2 – discard point: As heat exposure accumulates the square darkens; once it matches or is darker than the circle, the vaccine must be discarded.

Why the other options are wrong:

- A, darker than the circle: this is the discard point, not the safe point.
- C, same colour as the circle: the exact end point at which the vaccine is no longer usable.
- D, completely absent: the square is always present; its colour, not its presence, is read.

Final Answer: Lighter than the surrounding circle $\Rightarrow$ **B**

Answer: (B) [Go Back to Q10](#)



Q11.

Solution

Concept – heat sensitivity of vaccines: Vaccines vary in how quickly heat destroys their potency.

Step 1 – name the most sensitive: Oral polio vaccine (OPV) is the most heat-sensitive and is stored frozen at the higher levels of the cold chain.

Step 2 – practical rule: Because it is so fragile, OPV is kept in the deep freezer and moved down the chain last.

Why the other options are wrong:

- B, BCG: sensitive to light but less heat-labile than OPV.
- C, DPT: damaged by freezing rather than being the most heat-sensitive.
- D, tetanus toxoid: relatively heat-stable.

Final Answer: Oral polio vaccine (OPV) ⇒ A

Answer: (A) [Go Back to Q11](#)

Q12.

Solution

Concept – sanitary excreta disposal: Rural sanitation aims to isolate faeces safely and conveniently.

Step 1 – identify the design: The twin-pit pour-flush water-seal latrine uses two pits alternately; while one fills, the rested pit's content decomposes into safe manure.

Step 2 – programme link: This is the standard toilet promoted under the Swachh Bharat Mission for open-defecation-free villages.

Why the other options are wrong:

- A, bore-hole latrine: a temporary single-hole design used in camps.
- C, trench latrine: a short-term option for emergencies and fairs.
- D, service (bucket) latrine: an unsanitary, manually cleaned type now banned.

Final Answer: Twin-pit pour-flush water-seal latrine ⇒ B

Answer: (B) [Go Back to Q12](#)



Q13.

Solution

Concept – stages of sewage treatment: Sewage is purified in a sequence of physical and biological stages.

Step 1 – match the description: Removal of dissolved and colloidal organic matter by microbial action, using the activated sludge process or trickling filters, is **secondary (biological) treatment**.

Step 2 – place it in sequence: It follows preliminary screening and primary sedimentation, and precedes any tertiary polishing.

Why the other options are wrong:

- A, preliminary treatment: screening and grit removal of large solids.
- B, primary treatment: sedimentation of settleable solids only.
- C, tertiary treatment: final polishing such as disinfection and nutrient removal.

Final Answer: Secondary (biological) treatment ⇒ D

Answer: (D) [Go Back to Q13](#)

Q14.

Solution

Concept – structure of the National Health Mission: The NHM is the umbrella programme for public health delivery in India.

Step 1 – name the two sub-missions: The NHM runs through the **National Rural Health Mission (NRHM)** and the **National Urban Health Mission (NUHM)**.

Step 2 – scope: Together they cover rural and urban populations, with RCH and disease-control programmes running underneath.

Why the other options are wrong:

- B, RCH and RNTCP: these are programmes delivered under NHM, not its two sub-missions.
- C, ICDS and MDM: nutrition schemes run by other departments.
- D, NACO and NVBDCP: disease-specific control bodies, not the NHM sub-missions.

Final Answer: NRHM and NUHM ⇒ A



Answer: (A) [Go Back to Q14](#)

Q15.

Solution

Concept – the RCH programme: RCH is the integrated maternal and child health strategy under the NHM.

Step 1 – expand the abbreviation: RCH stands for **Reproductive and Child Health**.

Step 2 – components: It combines safe motherhood, newborn and child survival, immunisation, adolescent health and family planning into one continuum of care.

Why the other options are wrong:

- A, Rural Community Health: not the official expansion.
- B, Registered Child Healthcare: not a recognised programme term.
- C, Rapid Cure Health: has no basis in national health nomenclature.

Final Answer: Reproductive and Child Health ⇒ D

Answer: (D) [Go Back to Q15](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	C	3	A	4	C	5	C
6	B	7	D	8	A	9	C	10	B
11	A	12	B	13	D	14	A	15	D

