INI CET Community Medicine

Sample Paper – 9

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.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Epidemiology and Biostatistics

Q1. The infant mortality rate is defined as the number of infant deaths (under one year of age) in a year per 1000:

(A) Mid-year population

(B) Under-five children

(C) Women of reproductive age

(D) Live births

Q2. Age standardisation (adjustment) of death rates is performed mainly to remove the confounding effect of differences in which factor between two populations?

(A) Sample size

(B) Age distribution

(C) Sex ratio

(D) Case fatality

Q3. Which of the following is regarded as the single most sensitive index of the overall health and socioeconomic development of a community?

(A) Crude death rate

(B) Crude birth rate

(C) Maternal mortality ratio

(D) Infant mortality rate

Communicable Diseases

Q4. An animal bite producing single or multiple transdermal bites or scratches, or contamination of mucous membrane with saliva, is graded under the WHO classification as:

(A) Category I

(B) Category II

(C) Category III

(D) Category IV

Q5. The Essen (standard intramuscular) schedule of anti-rabies vaccine for post-exposure prophylaxis is given on which days?

(A) Days 0, 3 and 7 only

(B) Days 0, 7 and 21 only

(C) Days 0, 3, 7, 14 and 28

(D) Days 0, 3, 7, 14, 28 and 90

Q6. For a Category III animal exposure, rabies immunoglobulin (passive immunisation) is best administered by:

(A) Infiltrating as much as possible in and around the wound

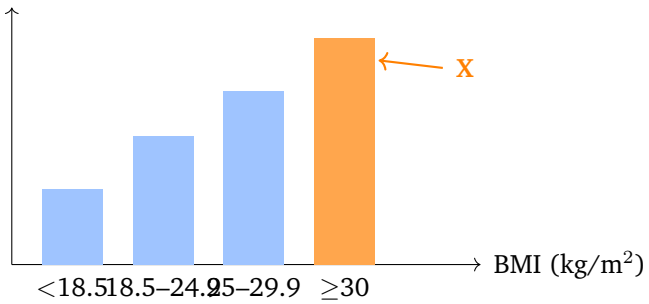
(B) Slow intravenous infusion

(C) A single intramuscular injection into the gluteal region

(D) Omitting it entirely once vaccine is started

Non-communicable Diseases and Nutrition

Q7. In the bar chart of WHO adult BMI categories shown, the bar marked **X** (BMI of 30.0 kg/m^2 and above) corresponds to which category?



(A) Obesity

(B) Overweight

(C) Normal weight

(D) Underweight

Q8. Under the Cigarettes and Other Tobacco Products Act (COTPA) 2003, Section 4 specifically prohibits:

(A) Sale of tobacco products to persons below 18 years

(B) Advertisement of tobacco products

(C) Smoking in public places

(D) Sale of tobacco within 100 yards of educational institutions

Maternal, Child Health and Family Planning

Q9. The growth chart used in the "road-to-health" card for under-five children primarily plots which parameter against the child's age?

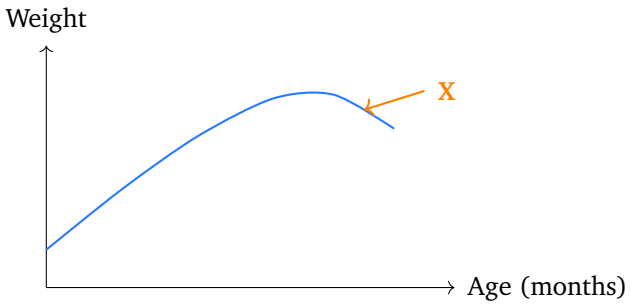
(A) Height (length)

(B) Weight

(C) Head circumference

(D) Mid-upper-arm circumference

Q10. In the road-to-health growth chart shown, the flattening of the child's weight curve at the point marked **X** most likely indicates:



(A) Normal catch-up growth

(B) Growth faltering (failure to thrive)

(C) Obesity

(D) A measurement error only

Q11. In children aged 1 to 5 years, a mid-upper-arm circumference (MUAC) below which value indicates severe acute malnutrition?

(A) 11.5 cm

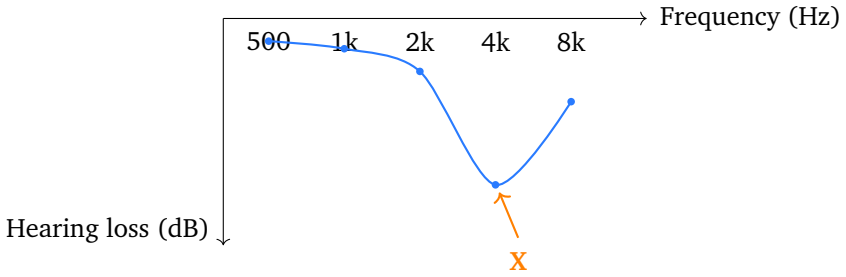
(B) 12.5 cm

(C) 13.5 cm

(D) 14.5 cm

Environmental and Occupational Health

Q12. The audiogram shown, with a characteristic dip (notch) at 4000 Hz marked **X** and relative recovery at higher frequencies, is typical of:



(A) Age-related presbycusis

(B) Noise-induced hearing loss

(C) Conductive hearing loss

(D) Otosclerosis

Q13. The recommended permissible occupational noise exposure limit for an eight-hour working day, above which hearing damage risk rises, is about:

(A) 90 dB

(B) 60 dB

(C) 120 dB

(D) 45 dB

Health Programmes, Demography and Health Systems

Q14. Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PM-JAY) provides a health cover of how much per eligible family per year for secondary and tertiary hospitalisation?

(A) Rs. 30,000

(B) Rs. 1 lakh

(C) Rs. 2 lakh

(D) Rs. 5 lakh

Q15. Which economic evaluation compares two health interventions in terms of cost per unit of a single common health outcome, such as cost per life-year gained?

(A) Cost-minimisation analysis

(B) Cost-benefit analysis

(C) Cost-effectiveness analysis

(D) Cost of illness study

Detailed Solutions

Q1.

Solution

Concept – infant mortality rate: IMR is a rate, so it needs a defined denominator.

Step 1 – state the numerator: The numerator is the number of deaths of infants under one year of age in a given year.

Step 2 – state the denominator: The denominator is the number of **live births** in the same year, and the rate is expressed per 1000 live births.

Why the other options are wrong:

- A, mid-year population: this is the denominator for the crude death rate, not IMR.
- B, under-five children: used conceptually for the under-five mortality base, not the IMR denominator.
- C, women of reproductive age: this base is used for general fertility rate.

Final Answer: Live births $\Rightarrow$ D

Answer: (D) Go Back to Q1

Q2.

Solution

Concept – standardisation of rates: Crude rates can mislead when populations differ in structure.

Step 1 – identify the confounder: Age is a strong determinant of death; an older population shows a higher crude death rate for that reason alone.

Step 2 – purpose of adjustment: Age standardisation removes the effect of differences in **age distribution**, allowing a fair comparison between populations.

Why the other options are wrong:

- A, sample size: handled by statistical precision, not standardisation.
- C, sex ratio: sex can be adjusted separately, but the classic reason for standardising death rates is age.
- D, case fatality: a separate measure of disease severity, not a population structure factor.

Final Answer: Age distribution $\Rightarrow$ B

Answer: (B) Go Back to Q2

Q3.

Solution

Concept – sensitive health index: Some indicators track community wellbeing better than others.

Step 1 – name the index: The **infant mortality rate** is regarded as the most sensitive index of the overall health and socioeconomic status of a community.

Step 2 – reason: Infant survival depends on maternal health, nutrition, sanitation, immunisation and access to care, so it reflects many social determinants at once.

Why the other options are wrong:

- A, crude death rate: heavily influenced by age structure and blunt as an index.
- B, crude birth rate: reflects fertility, not general health.
- C, maternal mortality ratio: important but narrower, focused on pregnancy-related risk.

Final Answer: Infant mortality rate $\Rightarrow$ D

Answer: (D) Go Back to Q3

Q4.

Solution

Concept – WHO wound categories: Post-exposure prophylaxis depends on the severity of contact.

Step 1 – read the exposure: Transdermal bites or scratches, or saliva contaminating a mucous membrane, are the most severe form of contact.

Step 2 – assign the category: This is **Category III**, which needs wound washing, anti-rabies vaccine and rabies immunoglobulin.

Why the other options are wrong:

- A, Category I: touching or feeding animals, intact skin, no exposure.
- B, Category II: minor scratches or nibbling of uncovered skin, without bleeding.
- D, Category IV: not part of the WHO three-category system.

Final Answer: Category III ⇒ C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept – anti-rabies vaccine schedules: Several intramuscular and intradermal regimens exist.

Step 1 – recall the Essen schedule: The Essen intramuscular regimen uses one dose on **days 0, 3, 7, 14 and 28**, a total of five doses.

Step 2 – context: It is the classic five-dose IM schedule for post-exposure prophylaxis in a previously unvaccinated person.

Why the other options are wrong:

- A, days 0, 3, 7: too few doses for the standard Essen course.
- B, days 0, 7, 21: not the Essen schedule.
- D, adds day 90: an extra dose not part of the standard five-dose Essen regimen.

Final Answer: Days 0, 3, 7, 14 and 28 ⇒ C

Answer: (C) Go Back to Q5

Q6.

Solution

Concept – rabies immunoglobulin: Passive immunity must neutralise virus at the wound before vaccine-induced antibody appears.

Step 1 – state the correct route: Rabies immunoglobulin should be **infiltrated in and around the wound** as thoroughly as the anatomy allows.

Step 2 – reason: Local infiltration neutralises virus at the site of entry; any remaining volume is given intramuscularly at a site distant from the vaccine.

Why the other options are wrong:

- B, intravenous: never given IV.
- C, single gluteal IM only: local wound infiltration is the key step, not a lone distant IM dose.
- D, omitting it: immunoglobulin is essential in Category III exposure.

Final Answer: Infiltrate in and around the wound ⇒ A

Answer: (A) Go Back to Q6

Q7.

Solution

Concept – WHO adult BMI classification: BMI cut-offs separate weight categories.

Step 1 – read the marked bar: The bar marked X sits at a BMI of 30.0 kg/m^2 and above.

Step 2 – assign the category: A BMI of 30 or more is classified as **obesity**.

Why the other options are wrong:

- B, overweight: BMI 25.0 to 29.9.
- C, normal weight: BMI 18.5 to 24.9.
- D, underweight: BMI below 18.5.

Final Answer: Obesity ⇒ A

Answer: (A) Go Back to Q7

Q8.

Solution

Concept – COTPA 2003 sections: Each section of the tobacco control law targets a specific practice.

Step 1 – recall Section 4: Section 4 prohibits **smoking in public places**.

Step 2 – context: This underpins the ban on smoking in workplaces, restaurants and public transport.

Why the other options are wrong:

- A, sale to minors: covered by Section 6.
- B, advertisement: covered by Section 5.
- D, sale near educational institutions: also under Section 6, not Section 4.

Final Answer: Smoking in public places ⇒ C

Answer: (C) Go Back to Q8

Q9.

Solution

Concept – road-to-health card: Growth monitoring tracks one main parameter over time.

Step 1 – name the parameter: The growth chart plots **weight** against age.

Step 2 – reason: Weight responds quickly to illness and undernutrition, so its trend flags problems earlier than height.

Why the other options are wrong:

- A, height: changes slowly and reflects chronic (stunting) rather than acute problems.
- C, head circumference: monitored for neurological growth, not the road-to-health weight curve.
- D, MUAC: a separate rapid screening measure, not what the growth chart plots.

Final Answer: Weight $\Rightarrow$ B

Answer: (B) Go Back to Q9

Q10.

Solution

Concept – reading the growth curve: The direction of the line matters more than a single point.

Step 1 – read point X: The curve rises normally and then flattens at X, meaning weight has stopped increasing with age.

Step 2 – interpret: A flat or falling curve signals **growth faltering (failure to thrive)** and calls for a search for illness or feeding problems.

Why the other options are wrong:

- A, catch-up growth: would show the line rising steeply, not flattening.
- C, obesity: would show weight rising above the expected channel.
- D, measurement error alone: a sustained flattening should be treated as real until proven otherwise.

Final Answer: Growth faltering $\Rightarrow$ B

Answer: (B) Go Back to Q10

Q11.

Solution

Concept – MUAC screening: Mid-upper-arm circumference is a quick field measure of acute malnutrition.

Step 1 – recall the cut-off: In children 1 to 5 years, MUAC below **11.5 cm** indicates severe acute malnutrition.

Step 2 – context: MUAC between 11.5 and 12.5 cm indicates moderate acute malnutrition, and 12.5 cm or more is normal.

Why the other options are wrong:

- B, 12.5 cm: the boundary for the normal / moderate categories, not severe.
- C, 13.5 cm and D, 14.5 cm: both lie in the normal range.

Final Answer: 11.5 cm $\Rightarrow$ A

Answer: (A) Go Back to Q11

Q12.

Solution

Concept – occupational audiogram: The shape of the hearing loss points to its cause.

Step 1 – read the notch: The dip marked X is at 4000 Hz, with better hearing on either side.

Step 2 – interpret: An early 4000 Hz notch is the classic sign of **noise-induced hearing loss**, a sensorineural, usually bilateral, occupational injury.

Why the other options are wrong:

- A, presbycusis: age-related loss is greatest at the highest frequencies, sloping down without a mid-frequency notch.
- C, conductive loss: a flat low-frequency loss with an air-bone gap, not a 4 kHz notch.
- D, otosclerosis: a conductive pattern, often with a Carhart notch at 2000 Hz.

Final Answer: Noise-induced hearing loss $\Rightarrow$ B

Answer: (B) Go Back to Q12

Q13.

Solution

Concept – permissible noise exposure: Occupational limits protect against hearing damage.

Step 1 – state the limit: The accepted permissible noise exposure for an eight-hour working day is about **90 dB**.

Step 2 – context: Above this level the risk of noise-induced hearing loss rises, and permitted exposure time falls as intensity increases.

Why the other options are wrong:

- B, 60 dB: the level of ordinary conversation, not a damage threshold.
- C, 120 dB: causes acute discomfort or pain and is far above the 8-hour limit.
- D, 45 dB: a quiet level, well below any occupational limit.

Final Answer: 90 dB $\Rightarrow$ A

Answer: (A) Go Back to Q13

Q14.

Solution

Concept – Ayushman Bharat PM-JAY: This is India's flagship government health insurance scheme.

Step 1 – state the cover: PM-JAY provides **Rs. 5 lakh** per eligible family per year.

Step 2 – context: The cover is for secondary and tertiary hospitalisation, is cashless and paperless at empanelled hospitals, and aims to cut out-of-pocket spending.

Why the other options are wrong:

- A, Rs. 30,000: the older RSBY cover, superseded by PM-JAY.
- B, Rs. 1 lakh and C, Rs. 2 lakh: below the actual PM-JAY entitlement.

Final Answer: Rs. 5 lakh $\Rightarrow$ D

Answer: (D) Go Back to Q14

Q15.

Solution

Concept – health economic evaluation: Different methods measure outcomes in different units.

Step 1 – identify the method: Comparing interventions by cost per unit of a single natural health outcome (such as a life-year gained) is **cost-effectiveness analysis**.

Step 2 – context: The result is expressed as an incremental cost-effectiveness ratio, cost per unit of health gained.

Why the other options are wrong:

- A, cost-minimisation: used only when outcomes of the options are equal, comparing cost alone.
- B, cost-benefit: values outcomes in money terms, not natural health units.
- D, cost of illness: measures the economic burden of a disease, it does not compare interventions.

Final Answer: Cost-effectiveness analysis $\Rightarrow$ C

Answer: (C) Go Back to Q15

Answer Key

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