

INI CET Community Medicine

Sample Paper – 2

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. In the 2x2 table from a cohort study shown below, the ratio of the incidence of disease among the exposed to the incidence among the unexposed (the quantity the arrow marks with **X**) is called the:

	Exp+	Exp-
Dis+	a	b
Dis-	c	d

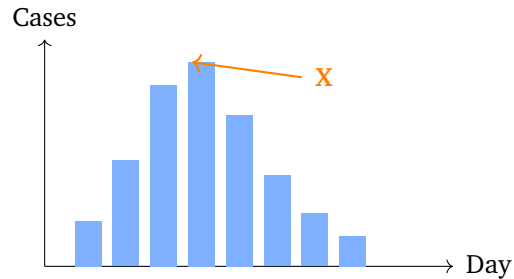
An orange arrow points from the letter 'X' to the cell containing 'b'.

- (A) Odds ratio
- (B) Relative risk
- (C) Attributable risk



(D) Case fatality rate

Q2. The epidemic curve shown below rises to a single sharp peak and falls just as quickly (peak marked X). This shape is most characteristic of:



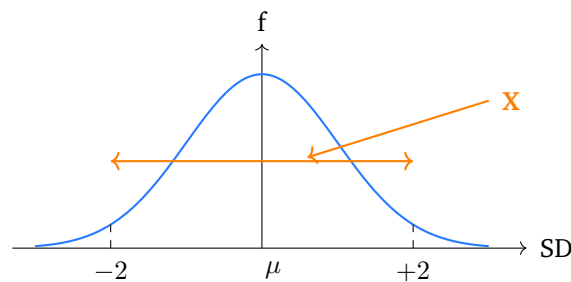
(A) A point-source (single-exposure) epidemic

(B) A propagated (person-to-person) epidemic

(C) An endemic disease

(D) A secular (long-term) trend

Q3. In the normal (Gaussian) distribution shown, the shaded band running from mean minus two standard deviations to mean plus two standard deviations (marked X) contains approximately what percentage of all observations?



(A) 68%

(B) 99.7%

(C) 95%

(D) 50%

Communicable Diseases

Q4. Human malaria is transmitted by the bite of which mosquito?



- (A) Female Anopheles mosquito
- (B) Female Aedes mosquito
- (C) Female Culex mosquito
- (D) Male Anopheles mosquito

Q5. Which Plasmodium species is responsible for most severe, potentially fatal cerebral malaria?

- (A) Plasmodium vivax
- (B) Plasmodium malariae
- (C) Plasmodium falciparum
- (D) Plasmodium ovale

Q6. Under the National Vector Borne Disease Control Programme, the mainstay of malaria vector control is:

- (A) Insecticide-treated bed nets and indoor residual spraying
- (B) Oral polio vaccine drops
- (C) Chlorination of drinking water
- (D) Mass vitamin A supplementation

Non-communicable Diseases and Nutrition

Q7. Night blindness and xerophthalmia in a preschool child result from the deficiency of which vitamin?

- (A) Vitamin C
- (B) Vitamin B12
- (C) Vitamin D
- (D) Vitamin A

Q8. Rickets in a growing child is caused by the deficiency of which fat-soluble vitamin?

- (A) Vitamin A



- (B) Vitamin D
- (C) Vitamin K
- (D) Vitamin E

Maternal, Child Health and Family Planning

- Q9.** The principal contraceptive mechanism of the combined oral contraceptive pill is:
- (A) A local spermicidal action in the vagina
 - (B) Prevention of implantation only
 - (C) Acting as a mechanical barrier to sperm ascent
 - (D) Suppression of ovulation
- Q10.** The copper-T intrauterine contraceptive device (Cu-T IUCD) prevents pregnancy mainly by:
- (A) Suppressing ovulation like an oral pill
 - (B) Permanently occluding the fallopian tubes
 - (C) A copper-induced spermicidal and foreign-body reaction that prevents fertilisation
 - (D) Thickening cervical mucus through daily progesterone tablets
- Q11.** Which temporary contraceptive method also protects against sexually transmitted infections?
- (A) Condom (barrier method)
 - (B) Copper-T IUCD
 - (C) Combined oral contraceptive pill
 - (D) Injectable DMPA

Environmental and Occupational Health

- Q12.** Indoor air pollution in rural Indian households is caused mainly by:



- (A) Refrigerant (chlorofluorocarbon) gases
- (B) Combustion of biomass fuels such as wood, dung and crop residue
- (C) Radon seeping from granite floors
- (D) Vehicular diesel exhaust drifting indoors

Q13. In the Air Quality Index, which pollutant, made of fine particles smaller than 2.5 micrometres, penetrates deepest to reach the alveoli and is most strongly linked to respiratory and cardiovascular disease?

- (A) Carbon monoxide
- (B) Ground-level ozone
- (C) PM2.5 (fine particulate matter)
- (D) Sulphur dioxide

Health Programmes, Demography and Health Systems

Q14. The declaration of “Health for All” through primary health care was made at the 1978 international conference held at:

- (A) Geneva
- (B) Alma-Ata
- (C) Ottawa
- (D) Bangkok

Q15. As per the current rural health infrastructure norms for plain areas, one Primary Health Centre (PHC) is meant to serve a population of about:

- (A) 3,000
- (B) 5,000
- (C) 20,000
- (D) 30,000



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

Concept – measures of association: A cohort study lets you compare disease rates between exposed and unexposed groups.

Step 1 – read the 2x2 table: Cell a = exposed with disease, b = unexposed with disease, c = exposed without disease, d = unexposed without disease.

Step 2 – form the ratio marked X: Incidence in exposed is $a/(a+c)$; incidence in unexposed is $b/(b+d)$. Their ratio is the **relative risk** (risk ratio).

Why the other options are wrong:

- A, odds ratio: uses the cross-product ad/bc , the measure for case-control studies.
- C, attributable risk: is a difference of incidences, not a ratio.
- D, case fatality rate: deaths among cases, unrelated to exposure comparison.

Final Answer: Relative risk $\Rightarrow$ **B**

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

Q2.**Solution**

Concept – epidemic curves: The shape of a case-count-over-time plot reveals how an outbreak spread.

Step 1 – read the shape: A single sharp peak with a rapid rise and fall (all cases within one incubation period) means everyone was exposed at nearly the same moment.

Step 2 – name it: This is a **point-source (single-exposure) epidemic**, for example food poisoning from one contaminated meal.

Why the other options are wrong:

- B, propagated: shows a series of progressively taller peaks one incubation period apart.
- C, endemic: a steady baseline level, not a peak.
- D, secular trend: a slow change over years, not a sharp outbreak.

Final Answer: Point-source epidemic $\Rightarrow$ **A**



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

Q3.

Solution

Concept – the normal distribution: A symmetrical bell curve follows the empirical (68-95-99.7) rule.

Step 1 – recall the rule: Mean $\pm$ 1 SD holds about 68%, mean $\pm$ 2 SD holds about 95%, and mean $\pm$ 3 SD holds about 99.7% of observations.

Step 2 – read the shaded band X: The band runs from -2 SD to $+2$ SD, so it captures about 95% of the data.

Why the other options are wrong:

- A, 68%: is the $\pm$ 1 SD range.
- B, 99.7%: is the $\pm$ 3 SD range.
- D, 50%: is only the area up to the mean.

Final Answer: 95% $\Rightarrow$

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

Q4.

Solution

Concept – malaria transmission: Malaria is a vector-borne parasitic disease.

Step 1 – identify the vector: The parasite is passed to humans through the bite of an infected **female Anopheles mosquito**, which needs a blood meal to develop its eggs.

Step 2 – confirm: Only the female bites and feeds on blood; the male feeds on plant nectar.

Why the other options are wrong:

- B, Aedes: transmits dengue, chikungunya and Zika.
- C, Culex: transmits filariasis and Japanese encephalitis.
- D, male Anopheles: does not bite and cannot transmit the parasite.

Final Answer: Female Anopheles mosquito $\Rightarrow$

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



Q5.

Solution

Concept – Plasmodium species: Four species commonly cause human malaria, differing in severity.

Step 1 – match severe disease: **Plasmodium falciparum** invades red cells of all ages, causes high parasite loads and leads to cerebral malaria, the most lethal form.

Step 2 – confirm: It accounts for most malaria deaths worldwide.

Why the other options are wrong:

- A, *P. vivax*: causes relapsing but usually milder malaria.
- B, *P. malariae*: causes chronic low-grade quartan malaria.
- D, *P. ovale*: an uncommon, generally benign relapsing malaria.

Final Answer: *Plasmodium falciparum* ⇒ C

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

Q6.

Solution

Concept – vector control: Breaking transmission means attacking the adult mosquito.

Step 1 – name the mainstay: The programme relies on **insecticide-treated bed nets (long-lasting insecticidal nets) and indoor residual spraying**, which kill or repel the biting *Anopheles*.

Step 2 – confirm: These are supported by early diagnosis and prompt antimalarial treatment.

Why the other options are wrong:

- B, oral polio vaccine: prevents poliomyelitis, not malaria.
- C, chlorination: makes water safe from bacteria, irrelevant to a mosquito vector.
- D, vitamin A: prevents blindness and reduces child mortality, not malaria transmission.

Final Answer: Bed nets and indoor residual spraying ⇒ A

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



Q7.

Solution

Concept – fat-soluble vitamins and the eye: Vitamin A is essential for the visual pigment and for healthy epithelium.

Step 1 – match the signs: Night blindness (poor rod function) and xerophthalmia (dry, keratinised conjunctiva and cornea) are the classic ocular signs of **vitamin A** deficiency.

Step 2 – confirm: Severe deficiency progresses to Bitot's spots, corneal ulceration and keratomalacia.

Why the other options are wrong:

- A, vitamin C: deficiency causes scurvy (bleeding gums).
- B, vitamin B12: deficiency causes megaloblastic anaemia and neuropathy.
- C, vitamin D: deficiency causes rickets, not night blindness.

Final Answer: Vitamin A $\Rightarrow$ D

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

Q8.

Solution

Concept – vitamin D and bone: Vitamin D controls calcium and phosphate absorption for bone mineralisation.

Step 1 – match the disease: In a growing child, lack of **vitamin D** leaves the bone matrix unmineralised, producing **rickets** (bowed legs, rachitic rosary, delayed fontanelle closure).

Step 2 – confirm: The same deficiency in adults causes osteomalacia.

Why the other options are wrong:

- A, vitamin A: deficiency affects the eyes and epithelia.
- C, vitamin K: deficiency causes bleeding tendency.
- D, vitamin E: deficiency causes haemolysis and neuropathy, not rickets.

Final Answer: Vitamin D $\Rightarrow$ B

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



Q9.

Solution

Concept – combined oral contraceptive pill: It contains an oestrogen plus a progestogen.

Step 1 – name the main mechanism: The hormones suppress the pituitary release of FSH and LH, so no follicle matures. The dominant action is **suppression of ovulation**.

Step 2 – supporting actions: It also thickens cervical mucus and thins the endometrium as backup effects.

Why the other options are wrong:

- A, spermicidal action: describes vaginal spermicides.
- B, prevention of implantation: is a minor, not the principal, effect.
- C, mechanical barrier: describes condoms and diaphragms.

Final Answer: Suppression of ovulation $\Rightarrow$ D

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

Q10.

Solution

Concept – copper intrauterine device: The Cu-T is a non-hormonal long-acting reversible method.

Step 1 – name the mechanism: Copper ions are toxic to sperm and, with the local foreign-body inflammatory reaction, create an environment that **prevents fertilisation**.

Step 2 – confirm: It does not rely on hormones, so it does not stop ovulation.

Why the other options are wrong:

- A, suppressing ovulation: is the action of the combined pill.
- B, occluding tubes permanently: describes tubal ligation, a permanent method.
- D, daily progesterone tablet: describes the progestogen-only pill, not the Cu-T.

Final Answer: Copper-induced spermicidal and foreign-body reaction $\Rightarrow$ C

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



Q11.

Solution

Concept – dual protection: Only a physical barrier stops both sperm and pathogens.

Step 1 – match the method: The **condom** is a barrier that prevents both pregnancy and the exchange of body fluids, so it also protects against sexually transmitted infections including HIV.

Step 2 – confirm: This dual protection is unique among the common temporary methods.

Why the other options are wrong:

- B, Cu-T IUCD: prevents pregnancy but gives no protection against infection.
- C, combined oral pill: hormonal, no barrier against infection.
- D, injectable DMPA: hormonal, no protection against infection.

Final Answer: Condom (barrier method) ⇒ A

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

Q12.

Solution

Concept – indoor air pollution: The source of household smoke depends on the cooking fuel.

Step 1 – name the source: In rural India, cooking on open stoves burning **biomass fuels (wood, dung cakes and crop residue)** fills the kitchen with smoke rich in particulate matter and carbon monoxide.

Step 2 – consequences: This raises the risk of acute respiratory infection in children and chronic obstructive lung disease in women.

Why the other options are wrong:

- A, refrigerant gases: relate to ozone depletion, not household smoke.
- C, radon: is an outdoor and geological hazard, not the main Indian rural problem.
- D, diesel exhaust: is chiefly an outdoor traffic pollutant.

Final Answer: Combustion of biomass fuels ⇒ B

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



Q13.

Solution

Concept – the Air Quality Index: The AQI tracks several pollutants; particle size decides how deep they travel.

Step 1 – identify the pollutant: PM2.5, particles under 2.5 micrometres, bypass the upper airway defences and reach the alveoli, entering the bloodstream.

Step 2 – confirm: It is the pollutant most strongly linked to respiratory and cardiovascular disease and is a key AQI driver.

Why the other options are wrong:

- A, carbon monoxide: a gas that binds haemoglobin but is not a fine particulate.
- B, ozone: a gaseous irritant of the airways, not a particle.
- D, sulphur dioxide: a gaseous irritant, larger effect on the upper airway.

Final Answer: PM2.5 (fine particulate matter) ⇒

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

Q14.

Solution

Concept – primary health care: A landmark conference defined the approach to “Health for All”.

Step 1 – name the place: The 1978 international conference on primary health care, jointly held by WHO and UNICEF, took place at **Alma-Ata** (then USSR).

Step 2 – confirm: It set the goal of “Health for All” and named primary health care as the key to reach it.

Why the other options are wrong:

- A, Geneva: the WHO headquarters, but not the site of this declaration.
- C, Ottawa: the 1986 charter for health promotion.
- D, Bangkok: the 2005 charter for health promotion in a globalised world.

Final Answer: Alma-Ata ⇒

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



Q15.

Solution

Concept – rural health infrastructure norms: Each tier serves a defined population, smaller in hilly and tribal areas.

Step 1 – recall the PHC norm: In plain areas one **Primary Health Centre** serves about 30,000 people (20,000 in hilly, tribal and difficult areas).

Step 2 – place it in the ladder: A subcentre covers 5,000 and a Community Health Centre covers about 1,20,000 in the plains.

Why the other options are wrong:

- A, 3,000: below even the subcentre norm.
- B, 5,000: the subcentre norm, not the PHC.
- C, 20,000: the PHC norm for hilly and tribal areas, not the plains.

Final Answer: 30,000 $\Rightarrow$ D

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



Answer Key

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

