

Choose the most correct answer: (only one answer)

1. WHO 1986 definition of health is: (1 point)

- a. Ensuring the health of the individual by maintaining and improving the health of the community.
- b. The science and art of preventing disease, prolonging life, and promoting health through the organized efforts of medical science.
- ☒ c. A complete state of physical, mental and social wellbeing and not merely the absence of disease.
- d. Health is the extent to which an individual or group is able, on the one hand to realize aspirations and safety needs; and, on the other hand, to change or cope with the environment. It is to be seen as a resource for everyday life and not merely the objective of living.

2. All of the following are considered functions of Public health, Except (1 point)

- a. Mobilizes communities for health
- b. Provides conditions conducive to health
- c. Promotes healthy lifestyles
- ☒ d. Heart transplant operation in specialized heart medical center

3. Which of the following are the major determinants of health (1 point)

- a. Human biology, Socio-demographic, Behavioural, Physical
- ☒ b. Human biology, Environment, Lifestyle behavior, Health care organization
- c. Community organization, Environment, Socio-demographic, culture
- d. Human biology, culture, Behavioural, Health care organization

4. Twentieth century models of disease causation theories include: (1 point)

- a. Miasma theory.
- b. Supernatural theory.
- ☒ c. The Multi Causal Theory
- d. All of the above are right.

5. The name of the person, who introduced in 1862 that germs caused many diseases, and in 1888 established the first public health lab is _____. (1 point)

- a. William Harvey
- b. John Snow
- c. Edward Jenner
- ☒ d. Louis Pasteur

6. The following are determinant of inequities Except (1 point)

- a. Health damaging behaviors.
- b. Exposure to unhealthy, stressful living and working conditions.
- c. Inadequate access to essential health and other public services.
- ☒ d. Differences in the incidence and prevalence of health conditions and health status between groups

7. _____ affects the health of a community and it includes the geography (e.g. High land versus low land), the environment (e.g. Manmade or natural catastrophes) and the industrial development (e.g. pollution occupational hazards) (1 point)

- a. Socio - cultural determinants
- b. physical determinants
- c. behavioral determinants
- d. biological determinants

8. Maternal mortality ratio is defined as: (1 point)

- a. The ratio of the number of maternal deaths during a given time period per 100,000 live births during the same time-period
- b. The ratio of maternal deaths during a given period per 1000 deliveries during the same period of time
- c. The ratio of maternal deaths due to all causes during a given period per 1000 deliveries during the same period of time
- d. The ratio of maternal deaths due to hypertension during a given period per 1000 deliveries during the same period of time

9. Infant mortality rate is the number of deaths of infants under one year old is measured per : (1 point)

- a. 100 000 live births
- b. 10000 live births
- c. 1000 live birth
- d. 100 live births

10. Epidemiological transition refers to (1 point)

- a. The change of mortality from infectious diseases to degenerative diseases
- b. A change in levels of diabetes in overweight adults
- c. The changing prevalence of vitamin D deficiency
- d. The change in birth defects due to genetic abnormalities

11. The health and wellbeing of the community is dependent on a good start, good future, good care and support. These include social, economic, physical and environmental factors which are known as: (1 point)

- a. A person's health
- b. Health promotion
- c. Public Health
- d. Determinants of health

12. _____ is the difference in health care which is not only unnecessary and avoidable but unfair and unjust (1 point)

- a. Health equity
- ☒ b. Health inequity
- c. Health disparities
- d. Health equality

13. Miasma theory is an obsolete medical theory that held that diseases—such as cholera, chlamydia, or the Black Death—were caused by: (1 point)

- ☒ a. a noxious form of "bad air", by the odor of decaying of organic materials
- b. by a vicious viral infection
- c. by genetic factors
- d. by all of the above

14. Hippocrates is credited with the following Except: (1 point)

- a. Diseases were caused naturally, not because of superstition
- ☒ b. Disease was the punishment of God.
- c. Considered the father of medicine.
- d. Having the disciples of Pythagoras of allying philosophy and medicine

15. The primary purpose of social determinants of health is to ensure: (1 point)

- ☒ a. The importance of providing medical treatment for chronic diseases
- ☒ b. The importance of reducing inequity within population
- c. The multi-sectoral approach in promoting health and preventing illness in the population.
- d. The involvement of people in designing and implementing health interventions

16. Health illness continuum, it is (1 point)

- a. The line between optimal health and death, people are moving on this line according to their social conditions
- b. People are not easy to move on the continuum if they are rich,
- ☒ c. All of the above
- d. None of the above

17. Major public health achievements in the 20th century Except: (1 point)

- a. Seat belts
- b. Tobacco as a health risk
- ☒ c. Discovery of CT scans
- d. Vaccines

18. Screening is considered sensitive if: (1 point)

- a. All detected cases are true positives
- ☒ b. If high percentage of identified cases are true positives
- c. If majority of identified cases are true negatives
- d. If None of the identified cases is false positive

19. _____ furthered the study of disease etiology (germs/bacteria) and introduced the 1st scientific approach to immunization and pasteurization (1 point)

- a. Willian Harvey
- b. John Snow
- c. Edward Jenner
- ☒ d. Louis Pasteur

20. Economic and social relationships, employment, housing and education that contribute to or detract from the health of individuals and communities are known as the _____ (1 point)

- ☒ a. Social determinants of health
- b. Community factors in health
- c. Environmental factors of health
- d. Perceived benefits of health

21. The epidemiologic analytical triad of disease causation refers to: (Choose one best answer) (1 point)

- ☒ a. Agent, host, environment
- b. Time, place, person
- c. Source, mode of transmission, susceptible host
- d. John Snow, Robert Koch, Kenneth Rothman

22. The criteria for instituting a screening program includes the following, except: (1 point)

- a. Rare disease with understood Natural history and long period between first signs and overt disease
- b. Diagnostic test: Sensitive and specific, Simple and cheap, Safe and acceptable, reliable
- c. Diagnosis: Facilities are adequate
- ☒ d. Treatment: Effective, acceptable, and safe treatment available.

23. _____: differences in the incidence and prevalence of health conditions and health status between groups (1 point)

- a. Health equity
- ☒ b. Health inequity
- c. Health disparities
- d. Health equality

24. A study in which cancer patients are randomly assigned to receive either a newly formulated chemotherapy or the currently available chemotherapy, and are followed to monitor for side effect and effectiveness of each drug, is an example of which type of study? (1 point)

- ☒ a. Interventional.
- b. Observational.
- c. Cohort.
- d. Ecological.

25. Comparison of study designs: Best for rare diseases: (1 point)

- ☒ a. Case Control Studies.
- b. Prospective Cohort Studies.
- c. Descriptive Studies.
- d. Cross Sectional Studies.

26. A prevalence rate is: (1 point)

- ☒ a. The total number of cases of a disease existing in a population divided by the total population.
- b. The number of new cases of a disease divided by the number of persons at risk for the disease.
- c. The number of new cases of a disease divided by the number of all cases of a disease.
- d. None of the above.

27. A study that measures the incidence of a disease (1 point)

- a. Case report
- b. Cross sectional
- c. Case control
- ☒ d. Cohort

28. All are correct about Environmental theory *except* (1 point)

- ☒ a. Significant number of chronic disease caused by toxins.
- ☒ b. It emphasizes the interrelatedness of many variables in disease causality, principally those under control of the individual.
- c. Disease prevention, instead of requiring medical treatments or personal hygiene, demands change in the industrial production.
- ☒ d. Concentrates on toxic substances in the air water and soil.

29. Which of the following is a case-control study? (1 point)

- a. Analysis of previous research in different places and under different circumstances to permit establishment of a hypothesis based on cumulative knowledge of all known factors identified in the disease under study.
- ☒ b. Obtaining histories and other information from a group of people with a particular disease or condition and from a group without the disease to determine the relative frequency of a past exposure under study
- c. Defining a group of disease free people by their exposure status and then following up over time to see which ones develop a disease or condition.
- d. Study of average exposure for a group and a population measure of outcome

30. A study was conducted to investigate the effect of HIV infection on mortality among people in Kenya with TB. Individuals with TB were recruited from hospitals and their HIV status determined. They were then followed-up over ten years to compare mortality rates in the HIV positive group and HIV negative group. (1 point)

- a. Case-control study
- ☒ b. Cohort study
- c. Randomized controlled trial
- d. Ecological study

31. In the Netherlands there is an increase in the prevalence of cardiovascular diseases.

This is a consequence of (1 point)

- a. deterioration of the food pattern
- ☒ b. increase in hypertension
- c. improved treatment
- d. increase in obesity

32. In an epidemiological context, what is *the population at risk*? (1 point)

- a. The proportion of a population that engage in risky behaviours.
- b. The group of people that may experience the outcome we want to study.
- c. A group of people participating in a study that may be harmful to them.
- ☒ d. The population group with the highest relative risk of disease.

33. _____ discovered that scurvy could be controlled by lime juice

- A. Willian Harvey (2 point)
- ☒ B. John Snow
- C. Edward Jenner
- D. Dr. James Lind

34. Which definition best describe the process of globalization? (1 point)

- a. Capitalist companies are spreading across the planet
- b. We all now live in a single society
- ☒ c. Individuals, groups and nations are becoming more interdependent
- d. Human beings now live on every continent of the planet

35. Prevention of progression or recurrence in patients with prostate cancer is an example of (1 point)

- a. Primordial prevention.
- b. Primary prevention.
- c. Secondary prevention
- ☒ d. Tertiary prevention

36. An example of secondary prevention would be (2 point)

- a. Wearing a seat belt
- ☒ b. Adequate treatment of Diabetes once detected
- c. Education about healthy eating exercising regularly
- d. Getting a flu vaccination

37. Improving sanitation, establishing healthy communities, and promoting a healthy lifestyle in childhood are examples on: (2 point)

- ☒ a. Primordial prevention.
- b. Primary prevention.
- c. Secondary prevention
- d. Tertiary prevention

38. Screening programs for breast cancer are aimed at: (2 point)

- ☒ a. Identifying true positives
- b. Identify true negatives only
- c. Specificity
- d. Negative predictive value

39. The probability of a person's having the disease when the test is positive (2 point)

- a. Sensitivity
- b. Specificity
- ☒ c. Positive predictive value
- d. Negative predictive value

40. An epidemiologist in Tanzania wants to study the efficacy of iron supplementation for the prevention of HIV infection. He wants to make sure that only subjects who are (still) free of HIV infection are enrolled in his trial. Therefore, he screens a large group of people using a diagnostic test. Based on the outcome of

the test, he decides who could participate in his iron supplementation trial. For this purpose, it is very important that the diagnostic test has a high... (2 point)

- a. Sensitivity
- b. Positive predictive value
- ☒ c. Specificity
- d. Negative predictive value

You are working in a pediatric clinic with an experienced pediatrician. You examine 50 children whose parents are concerned about the possibility of ear infection. You believe that 15 children have red and bulging tympanic membranes consistent with otitis media (OM). The pediatrician examines these same children and makes a diagnosis of otitis media in 25 children. The pediatrician agrees that 10 of your 15 diagnoses of children with otitis media are correct.

41. Calculate the sensitivity of your examination. (1 point)

- a. 10/25
- b. 10/15
- c. 15/35
- d. 15/50

42. Calculate the specificity of your examination. (1 point)

- a. 10/15
- b. 15/35
- c. 15/50
- d. 20/25

43. Calculate the chance that your diagnosis of Otitis Media is correct. (1 point)

- a. 10/25
- b. 10/15
- c. 15/35
- d. 15/50

44. Calculate the chance that your diagnosis of normal eardrum is correct. (1 point)

- a. 10/15
- b. 15/35
- c. 15/50
- d. 20/35

Absolut Risk = $\frac{64}{64+178}$

RR = $\frac{In.exp}{In.non.exp}$

$$\frac{64}{14178} - \frac{166}{166277}$$

	case	control
exp	64	178
non. exp	166	277
	230	455

od. case = $\frac{64}{166}$

od. control = $\frac{178}{277}$

od. exp = $\frac{64}{178}$

od. non.exp = $\frac{166}{277}$

1. A study was conducted to determine whether there is an association between caffeine consumption and Myocardial Infarction. The study included 230 incident cases of MI and 455 controls from the general population. After interviewing all subjects, it was found that 64 of the cases had high daily consumption of caffeine (exposed) prior to diagnosis and 277 of the controls had low daily consumption of caffeine (unexposed) prior to the date of the matched case's diagnosis.

	Case	Control
Exposed	64	178
Unexposed	166	277
	230	455

od. case = $\frac{od.exp}{od.non.exp}$

$\frac{64}{178}$
 $\frac{166}{277}$

$\frac{64}{166}$
 $\frac{178}{277}$

	Disease + (MI)	No disease No MI	Total
Consumption of caffeine	64	178	242
No Consumption of caffeine	166	277	443
	230	455	685

1. Calculate the odds of being a case among the exposed
64/242
2. Calculate the odds of being a case among the unexposed
166/443
3. Calculate the odds ratio for disease given exposure to high daily intake of caffeine (versus low daily intake of caffeine).
 $\frac{64/166}{178/277} = \frac{64 \times 277}{166 \times 178}$
4. Interpret the measure of association.

2. A study was conducted to examine risk factors for Asthma and smoking. 430 emergency room cases were identified from Al-Maqased hospital in 2017, and 1204 controls were sampled from the patients admitted to the emergency room for shortness of breath. It was found that 110 of the cases and 214 of the controls were smoker. The remaining cases and controls did not smoke.

	Case	control
exp	110	214
non.exp	320	990
	430	1204

$$\frac{110 \times 990}{320 \times 214} = \dots$$

	Case	Control
Exposed	110	214
Unexposed	320	990
	430	1204

	Disease +	No disease	Total
Smoked	110	214	324
Not-smoked	320	990	1310
	430	1204	1634

What is the incidence in exposed⁺ = 110/ 324 ✓

What the incidence is in unexposed⁻ = 320/1310 ✓

What is the relative risk or risk ratio

$$\frac{110/324}{320/1310}$$

$$RR = \frac{\frac{110}{324}}{\frac{320}{1310}} = \frac{110 \times 1310}{324 \times 320} = \dots$$

Screening test

A test is used to screen people for hepatitis B. The sensitivity of the test is 95% and the specificity of the test is 90%. Assume that the total number of persons being tested for hepatitis B is 5000. Assume that the true prevalence of hepatitis B in the population is 100 per 5000. Please calculate the following:

1. # of true positive
2. # of true negative
3. # of false positive
4. # of false negative
5. Positive predictive value.
6. Negative predictive value.

		Truth		Total
		+	-	
Hepatitis test	+	95	490	585
	-	5	4410	4415
		100	4900	5000