

# ENTRANCE EXAMINATIONS – 2019

(Ph.D. Admissions - January 2020 Session)

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Ph.D. Health Sciences (Public Health)

Hall Ticket Number

Time: 2 hours    Total Marks: 70 (Part I - 35 marks + Part II - 35 marks)

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PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY  
BEFORE ANSWERING.

## INSTRUCTIONS

1. This booklet has **TWELVE (12) pages**. Please check thoroughly for all the pages.
  2. Enter the Hall Ticket number on the first page of this booklet as well as on the OMR sheet.
  3. There are two PARTS in the question paper – **PART I (Question numbers 1-35) and PART II (Question numbers 36 -70)**. In case of a tie, marks obtained in PART I will be considered for resolving the tie.
  4. Each question carries 1 mark and there is **no negative marking**.
  5. All answers have to be answered only in the OMR sheet following the instructions provided thereupon.
  6. Scientific calculators are not permitted.
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V-89

## PART I

1. In the study of an outbreak of an infectious disease, plotting an epidemic curve is useful because:

- A. It helps to determine what type of outbreak has occurred.
- B. It shows whether herd immunity has occurred.
- C. It helps to determine the median incubation period.
- D. To determine type of outbreak and median incubation period.

2. At an initial examination in Hyderabad, migraine headache was found in 5 of 1,000 men aged 30 to 35 years and in 10 of 1,000 women aged 30 to 35 years. The inference that women have a two times greater risk of developing migraine headache than do men in this age group is:

- A. Correct, because the denominator for both are the same.
- B. Incorrect, because a ratio has been used to compare male and female rates.
- C. Incorrect, because of failure to recognize the effect of age in the two groups.
- D. Incorrect, because of failure to distinguish between incidence and prevalence.

3. What would be the effect on age-specific incidence rates of uterine cancer if women with hysterectomies were excluded from the denominator of the calculations, assuming that there are some women in each age group who have had hysterectomies?

- A. The rates would remain the same
- B. The rates would tend to decrease
- C. The rates would tend to increase
- D. The rates would increase in older groups and decrease in younger groups

4. Age-adjusted death rates are used to:

- A. Correct death rates for errors in the statement of age.
- B. Determine the actual number of deaths that occurred in specific age groups in a population.
- C. Eliminate the effects of differences in the age distributions of populations in comparing death rates.
- D. All of the above.

5. The incidence rate of a disease is five times greater in women than in men, but the prevalence rates show no sex difference. The best explanation is that:

- A. The crude all-cause mortality rate is greater in women
- B. The case-fatality from this disease is greater in women
- C. The case-fatality from this disease is lower in women
- D. The duration of this disease is shorter in men

6. A program manager from an international health funding agency needs to identify regions that would benefit from an intervention aimed at reducing premature disability. The program manager asks a health care consultant to develop a proposal using an index that would help her make this decision. Which of the following would best serve this purpose?

- A. Case-fatality
- B. Crude mortality rate
- C. Disability-adjusted life-years
- D. Standardized mortality ratio

7. A physical examination was used to screen for breast cancer in 2,500 women with biopsy-proven adenocarcinoma of the breast and in 5,000 age- and matched control women. The results of the physical examination were positive (i.e., a mass was palpated) in 1,800 cases and in 800 control women, all of whom showed no evidence of cancer at biopsy. The sensitivity of the physical examination was:

- A. 72%
- B. 84%
- C. 69%
- D. 70%

8. Which of the following is a good index of the severity of a short-term, acute disease?

- A. Cause-specific death rate
- B. 5-year survival
- C. Case-fatality
- D. Standardized mortality ratio

9. The major purpose of random assignment in a clinical trial is to:

- A. Help ensure that study subjects are representative of the general population
- B. Facilitate the measurement of outcome variables
- C. Ensure that the study groups have comparable baseline characteristics
- D. Reduce selection bias in the allocation of treatment

10. A randomized trial comparing the efficacy of two drugs showed a difference between the two (with a  $P$  value  $< 0.05$ ). Assume that in reality, however, the two drugs do not differ. This is therefore an example of:

- A. Type I error ( $\alpha$  error)
- B. Type II error ( $\beta$  error)
- C.  $1 - \alpha$
- D.  $1 - \beta$

11. Ecologic fallacy refers to:

- A. Assessing exposure in large groups rather than in many small groups
- B. Assessing outcome in large groups rather than in many small groups
- C. Ascribing the characteristics of a group to every individual in that group
- D. Failure to examine temporal relationships between exposures and outcomes

12. Several studies have found that approximately 85% of cases of lung cancer are due to cigarette smoking. This measure is an example of:

- A. An incidence rate
- B. An attributable risk
- C. A relative risk
- D. A proportionate mortality ratio

13. All of the following are important criteria when making causal inferences *except*:

- A. Consistency with existing knowledge
- B. Dose-response relationship
- C. Strength of association
- D. Predictive value

14. All of the following variables are classified as nominal, except:

- A. Sex
- B. Body weight (obese/not obese)
- C. Education (high school degree/no degree)
- D. Education (highest year of schooling)

15. The stages of a malignant disease (cancer) is recorded using the symbols 0, I, II, III, IV. We say that the scale used is:

- A. Alphanumeric
- B. Numerical
- C. Ordinal
- D. Nominal

16. If the average of a series of values is 10 and their variance is 4, then the coefficient of variation (= the ratio standard deviation / average) is:

- A. 40%
- B. 20%
- C. 80%
- D. 10%

17. If a series of values consists of 21 numbers, then, for finding the median, we ordered the series ascending and we use:

- A. The 11th value in the ordered series
- B. The mean between the 10th and 11th values
- C. The mean between the 11th and 12th values
- D. The 10th value in the ordered series

18. The Confidence Interval for the mean, calculated for a series of values, has the interpretation:

- A. The true mean, the one that approximates the population's mean, is almost certainly inside the confidence interval
- B. The true variance is almost certain inside the confidence interval
- C. The true median is almost certain inside the confidence interval
- D. It is an interval that contains almost all the values of the series

19. If, after performing a Student test for comparison of means, we obtain  $p = 0.0256$ , then:

- A. We reject  $H_0$  and accept  $H_1$
- B. We accept  $H_0$
- C. We reject  $H_1$
- D. We cannot decide

20. If on a group of 457 patients, for a risk factor we calculated a Relative Risk  $RR = 12.74$ , the possibility of developing the disease being investigated is:

- A. Very high when exposed to the factor
- B. Very small when exposed to the factor
- C. The same in the case of exposure in the case of non-exposure
- D. Lower in the exposed than in the unexposed,  $RR$  being less than 100

21. Use the following steps of an outbreak investigation for this Question:

1. *Analyze data by time, place, and person*
2. *Conduct a case-control study*
3. *Generate hypotheses*
4. *Conduct active surveillance for additional cases*
5. *Verify the diagnosis*
6. *Confirm that the number of cases exceeds the expected number*
7. *Talk with laboratorians about specimen collection*

For an investigation of an outbreak, what is the logical conceptual order of the steps listed above?

- A. 1-2-3-4-5-6-7
- B. 5-6-4-1-2-3-7
- C. 6-5-3-1-2-7-4
- D. 6-5-7-4-1-3-2

22. In general, screening should be undertaken for diseases with the following feature(s):

- A. Diseases with a low prevalence in identifiable subgroups of the population
- B. Diseases for which case-fatality are low
- C. Diseases with a natural history that can be altered by medical intervention
- D. Diseases that are readily diagnosed and for which treatment efficacy has been shown to be equivocal in evidence from a number of clinical trials

23. The extent to which a specific health care treatment, service, procedure, program, or other intervention does what it is intended to do when used in a community-dwelling population is termed its:

- A. Efficacy
- B. Effectiveness
- C. Effect modification
- D. Efficiency

24. When conducting a study on human samples, which of the following is not correct:

- A. For all clinical trials, approval of Institutional review board and Clinical trial registry of India have to sought
- B. For use of left over diagnostic samples from patients, the hospital approval will be adequate to conduct the study
- C. For studies involving use of stem cells, additional approval of IC- SCR needs to be obtained
- D. For obtaining consent from minors, permission from the legal guardian and assent is required

25. What is the role of the moderator in a focus group?

- A. To stimulate discussion and keep the conversation on track
- B. To ask leading questions and dominate the discussion
- C. To sit away from the group and observe their behaviour
- D. To evaluate the group's performance on a particular task

26. Why is it helpful to prepare an interview guide before conducting semi-structured interview?

- A. So that the data from different interviewees will be comparable and relevant to your research questions
- B. So that you can calculate the statistical significance of the results
- C. In order to allow participants complete control over the topics they discuss
- D. To make sample more representative

27. Who is a Key informant?

- A. A group member who helps the ethnographer gain access to relevant people /events
- B. A senior level member of the organization who refuses to allow researchers into it.
- C. A participant who appears to be helpful but then blows the researcher's cover
- D. Someone who cuts keys to help the ethnographer gain access to a building

28. Match List-I (Interviews) with List-II (Meaning) and select the correct answer from the code given below.

List-I ( Interviews)	List-II(Meanings)
A. Structured Interviews	I. Greater flexibility approach
B. Unstructured Interviews	II. Attention on questions to be answered
C. Focused Interviews	III. Individual Life experience
D. Clinical Interviews	IV. Predetermined question
	V. Non-directive

Codes:

- A. A-IV, B-I, C-II, D-III
- B. A-V, B-II, C-IV, D-I
- C. A-II, B-IV, C-I, D-III
- D. A-I, B-III, C-V, D-IV

29. Which form of reasoning is the process of drawing a specific conclusion from a set of premises?

- A. Rationalism
- B. Deductive reasoning
- C. Inductive reasoning
- D. Probabilistic

30. The degree to which results of a study can be extended to other settings or condition describes:

- A. Population generalizability
- B. Conclusions researchers make about a random sample
- C. Conclusions researchers make about information uncovered in research study
- D. Ecological generalizability

31. Which of the following is used for representing qualitative data?

- A. Histogram
- B. Polygon
- C. Pie chart
- D. Line chart

**32. The scatter plot is ideal for display of:**

- A. Causality
- B. Correlation
- C. Power
- D. Type II error

**33. Eight babies are born in a maternity hospital on same day. All weigh 2.9 Kg each; what would be the standard deviation**

- A. 0.28
- B. 1
- C. 2.9
- D. 0

**34. A widely used format developed by Rensis Likert is used for asking questions about:**

- A. Attitude
- B. Personality
- C. Morale
- D. Ethics

**35. The degree to which results of a study can be extended to other settings or condition describes:**

- A. Population generalizability
  - B. Conclusions researchers make about a random sample
  - C. Conclusions researchers make about information uncovered in research study
  - D. Ecological generalizability
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## PART II

36. Which answer is wrong with regard to caution required before entering X ray room?

- A. Proven pregnancy
- B. Do not use any ornament or metallic things
- C. Use of Badge for technicians is mandatory
- D. Use of protective shield for attendants if they have to accompany the patient

37. Regarding disposing of Waste, which is a false:

- A. Black colour is for needles with syringes, sharp items
- B. Blue colour is for all glass bottles, broken glasses and outdated medicines
- C. Red colour is for plastic waste such as catheters, syringes tubing etc.
- D. Yellow bag is for infectious waste such as bandages gauze, body fluids etc.

38. Which combination is incorrect?

- A. Penicillin: Sir Alexander Fleming
- B. Leprosy: G A Hansens
- C. Small Pox Vaccine: Edward Jenner
- D. Salmonella Typhi: Typhoid Mary

39. Which of these scientists did not get a Nobel Prize?

- A. Sir John Gurdon
- B. Robert Kochs
- C. Hargobind Singh Khurana
- D. Yellapragada Subba Rao

40. Currently how many types of disabilities are covered under Rights of Persons with Disabilities Act, 2016?

- A. 7
- B. 14
- C. 21
- D. 3

41. According to Rights of Persons with Disabilities Act, 2016, reservation in employment for persons with benchmark disabilities is -----

- A. not less than 3 percent
- B. not less than 4 percent
- C. not less than 5 percent
- D. not less than 2 percent

42. Disability-Adjusted Life Year (DALY) DALYs for a disease or health condition are calculated for people living with the health condition or its consequences as:

- A. the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD)
- B. the sum of the Years of Life Lost (YLL) due to disability in the population and the Years Lost due to Disability (YLD)
- C. the Years of Life Lost (YLL) due to premature mortality in the population
- D. the Years Lost due to Disability (YLD)



43. Which of the following is most strongly associated with Coronary Heart Disease?

- A. Apolipoproteins
- B. VLDL
- C. HDL
- D. Total lipoproteins

44. Measure of primary prevention of hypertension include all of the following except:

- A. Weight reduction
- B. Exercise promotion
- C. Reduction of salt intake
- D. Early diagnosis of Hypertension

45. Which of the following pairs regarding typical composition of hospital wastes is incorrect?

- A. Plastics: 9-12%
- B. Metals: 1-2%
- C. Ceramic: 8-10%
- D. Biodegradable: 35-40%

46. As in 2016, the number of biosphere reserves in India as per UNESCO'S MAB list is:

- A. 10
- B. 9
- C. 11
- D. 12

47. Distributive justice is the common aim of:

- A. Articles 44 and 45
- B. Articles 38 and 39
- C. Articles 29 and 30
- D. Articles 45 and 46

48. Which of the following age groups is taken into consideration for constituting gender parity index for higher education?

- A. 15-22 years
- B. 18-23 years
- C. 16-22 years
- D. 18-25 years

49. Which of the following are the tools of good governance? 1. Social audit 2. Separation of powers 3. Citizen's charter 4. Right to information. Select the correct answer from the codes given below

- A. 1,3 and 4
- B. 2,3 and 4
- C. 1 and 4
- D. 1,2,3 and 4

50. "One is not born but rather becomes a woman". Who said this?

- A. John Stuart Mill
- B. Betty Friedan
- C. Simone de Beauvoir
- D. Shulamith Firestone

51. The SAARC Decade for the Girl Child was:

- A. 1961 – 1970
- B. 1991 – 2000
- C. 1971 – 1980
- D. 1975 – 1985

52. The first woman who called for International Women's Day in 1910 was:

- A. Margret Cousin
- B. Aruna Asaf Ali
- C. Clara Zetkin
- D. Lucy Stone

53. The \_\_\_\_\_ perspective highlights the social relations of work in different economic modes of production in its analysis of social inequalities and exploitation:

- A. Liberal Feminism
- B. Marxist feminism
- C. Social feminism
- D. Radical feminism

54. Identify the response in the "Match the following" that is not correctly matched?

- A. Radical Feminism – Patriarchy
- B. Marxists Feminism – Sexual Division of labour
- C. Liberal Feminism – Capitalism
- D. Black Feminism – Race

55. Which is *incorrect* regarding giving valid consent?

- A. Given in background of sufficient counselling
- B. Given by a patient with capacity for such decision
- C. Comes with caveat that patient can't change his mind
- D. Without pressure and coercion

56. What is of *least* importance to Bioethics?

- A. Health care bodies regulations
- B. Ethical theories
- C. National laws
- D. Personal preference of Health care provider

57. The core principle of bioethics are the following except:

- A. Justice
- B. Maleficence
- C. Beneficence
- D. Autonomy

58. Gender roles refer to:

- A. The subordination of women based on the assumption of superiority of men.
- B. Chromosomal and hormonal differences that cause inevitable differences in the behaviour of men and women.
- C. The rights, responsibilities, expectations, and relationships of women and men.
- D. None of the above

59. Match the following:

a. *LaLonde's strategies:*

b. *Social determinants of health:*

c. *Public health*

d. *Health policy*

1. *Conditions in which people are born, grow, live, work and age, including the health system*

2. *Health Promotion, Regulation, Research, Health care efficiency, Goal setting*

3. *Decisions, plans, and actions that are undertaken to achieve health care goals within a society*

4. *The Science and art of preventing disease, prolonging life and promoting health through the organized efforts of society.*

A. a-3, b-4, c-1, d -2

B. a-2, b-1, c-4, d-3

C. a-4, b-3, c-2, d-1

D. a-1, b-2, c-3, d-4

60. Match the following time scales for global public health

a. *1948*

b. *1974*

c. *1978*

d. *1980*

1. *Alma Ata*

2. *World Health Organization (WHO) formation*

3. *Global eradication of Small pox*

4. *Lalonde Report New perspective on Health of Canadians, factors others than health care contribute to health of population*

A. a-2, b-4, c-1, d-3

B. a-2, b-4, c-3, d-1

C. a-1, b-2, c-3, d-4

D. a-4, b-3, c-2, d-1

61. All the following are common diseases transmitted by mosquitoes, except:

A. *Filaria*

B. *Measles*

C. *Japanese encephalitis*

D. *Chikungunya*

62. First vaccine for humans was developed by:

A. *Louis Pasteur*

B. *James Watson*

C. *Ulf von Euler*

D. *Edward Jenner*

63. Which of the following disease is eradicated from the world?

A. *Dengue*

B. *Small Pox*

C. *Yellow Fever*

D. *Poliomyelitis*

64. What is stunting?

- A. Low weight-for-age
- B. Low height-for-age
- C. Low weight-for-height
- D. High weight-for-height

65. The highest accident rate in India is seen in:

- A. Docks
- B. Mines
- C. Railways
- D. Factories

66. Bagassosis is due to inhalation of:

- A. Cotton dust
- B. Sugarcane dust
- C. Silica dust
- D. Coal dust

67. As per the Indian Factories Act, children are prohibited from employment if they are below the age of:

- A. 10
- B. 14
- C. 16
- D. 18

68. Safe limit of chlorine in drinking water in mg/litre is:

- A. 0.5-0.8
- B. 0.1-0.3
- C. 1
- D. 1.5

69. The best indicator for level of air pollution is:

- A. H<sub>2</sub>
- B. CO<sub>2</sub>
- C. N<sub>2</sub>
- D. SO<sub>2</sub>

70. The Nobel Prize for Economics in 2019 was awarded for studies which were:

- A. Survival Analysis
- B. Actuarial Analysis
- C. Randomised Controlled Trials
- D. Econometric modelling

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