Chattogram Veterinary and Animal Sciences University
MS in Public Health (MPH)
January-June 2024
Subject: Zoonoses and EIDs
Course code: ZED 601
Total marks: 40
Time: 2 hours
(Figures in the right margin indicate full marks. Answer any four questions)

1	a	Define zoonoses. Classify zoonoses according to modes of transmission, occupational hazard, ecosystem with example in each case.	5.0
		Write down the significance of following bacterial zoonotic disease like anthrax, brucella and leptospira.	5.0
2	a	Explain the parasitic life cycle of trypanosomiasis, sarcocystis, and toxoplasma.	5.0
	a	Explain the life cycle of malarial parasite and what are complication can be encountered in case of malaria patient?	5.0
3	a	Define rabies. Mention the rabies like virus. List reservoir animals of rabies virus.	5.0
	b	What are categories of rabies wound based on WHO and what actions will be taken for each case in a tabular form. Why rabies is called One Health disease?	5.0
4	a	Define Tuberculosis. What are distribution of TB cases around the world?	5.0
		Explain pathogenesis of TB and directly observed treatment, short course (DOTS) strategy by WHO.	5.0
5	a	Define dengue fever and its distribution around the world.	5.0
	b	Explain criteria by WHO for diagnosis of dengue fever, dengue hemorrhagic fever, dengue shock syndrome.	5.0

Chittagong Veterinary and Animal Sciences University
One Health Institute
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Course title: Fundamentals of Public Health
Code: FPH-601
Full marks: 40, Time: 2 hours

Answer any five (5) of the following questions (8x5=40)

1. What is Public Health? In Bangladesh, the prevalence of Tuberculosis is increasing. What can we do to prevent Tuberculosis?
2. Vaccination is a critical topic related to Public Health. How did the idea of vaccination start? Please discuss the story related to the first vaccination.
3. Name six building blocks of the health system. Among these, which are the input components, output components, and cross-cutting components and why?
4. Mention sustainable development goal 3.1. Mention five (5) causes of maternal mortality. To improve maternal mortality globally, which region of the world should we focus on and why?
5. What are the indicators for SDG 3.3? What is the situation of HIV globally? What should we do to end the HIV epidemic in the world?
6. Mention the modifiable and metabolic risk factors for non-communicable disease. What can we do to prevent the increasing prevalence of Diabetes Mellitus in Bangladesh?
7. What are the indicators for SDG 3.7? What are the types of different contraceptive methods? Discuss types of gender-based violence with examples.

One Health Institute
Chattogram Veterinary and Animal Sciences University
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Subject: Food Safety and Risk Assessment
Course Code: FRA-601

Full Marks: 40 **Time: 02 hours**

[Figures in the right margin indicate full marks. Answer four (4) questions. Split answers are discouraged.]

1. a) What is food safety and food quality? List different food safety and quality systems along with advantages of having quality systems. 05

   b) How does cooking temperature effect food safety of meat? Mention different cooking temperature for different meat to ensure food safety. 05

2. a) Write in brief about Good Hygienic Practices. 06

   b) What do you mean by the term 'Allergy'? Rewrite the symptoms and common food associated with food allergens. 04

3. a) Define the following term: 05
   Hazard, Control Point, Critical Control Point, Deviation, Corrective Action

   b) Draw the flow diagram of CCP recognition at different stages of food production. 05

4. a) What is risk analysis? Mention key components of risk analysis along with its principles. 05

   b) Reproduce principles of food safety risk management. 05

5. Write a short note on the following: 3+3+4

   Fish safety, Five keys to safe food, Food Poisoning

Chittagong Veterinary and Animal Sciences University
One Health Institute
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Course title: Extended Epidemiology and Research Methodology (Practical)
Code: ERM-601
Full marks: 20, Time: 1 hour

(Figures in the right margin indicate full marks. Answer the following questions)

1. The Nurse's Health Study looked at the association between obesity & heart disease, they compared the risk of heart attacks in five categories of body mass index. The result is given in the table below. Take a groups BMI group as reference/baseline and calculate the rate ratio for the other groups and interpret your results. 05

Body Mass Index (BMI)	Non-fatal Myocardial Infarctions	Person-Years of Event-free Observation	Incidence Rate per 100,000 Person Years	Rate Ratio
<21	41	177,356	23.1	
21-23	57	194,243	29.3	
23-25	56	155,717	36.0	
25-29	67	148,541	45.1	
>29	85	99,573	85.4	

2. In 1976, a number of people at the 58th annual convention of the American Legion (war veterans) held in Philadelphia, fell ill with a type of pneumonia that was ultimately named Legionnaires' disease. The convention was attended by official American Legion delegates and non-delegates (e.g., family members). The number of delegates and non-delegates who developed Legionnaires' disease during or shortly after the convention was as follows: 10

	Developed Legionnaires disease		
	Yes	No	
Delegates	125	1724	
Non-delegates	3	759	

a. Calculate the risk ratio of Legionnaires' comparing delegates and nondelegates.
b. State your interpretation of the statistic you calculated in part a.
c. Now calculate the odds ratio associated with being a delegate. Why was the odds ratio bigger than the risk ratio?
d. Calculate the attributable fraction of exposed cases associated with being a delegate.
e. Interpret the statistic in part d.

P.T.O.

3. Estimate the Odds Ratio from the data given below and interpret the result. 05

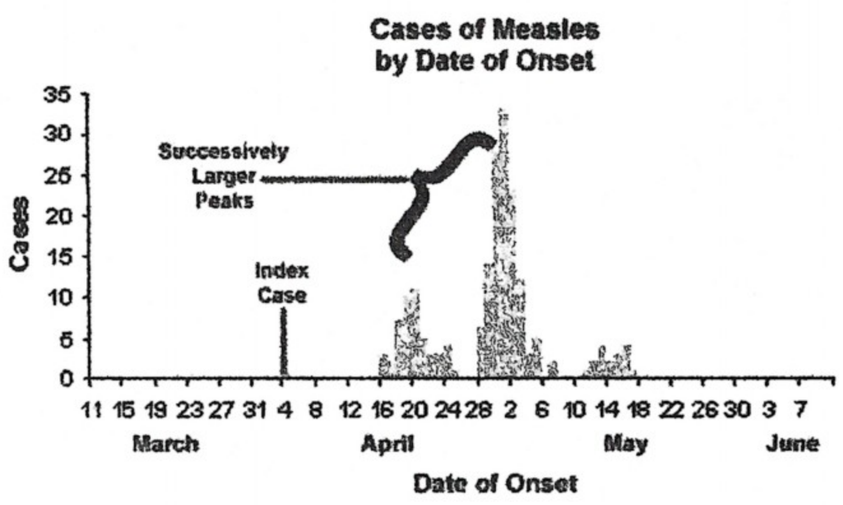
Smoking status	CHD		Total
	CHD present	CHD absent	
Smoker	12	88	100
Non smoker	09	391	400
total	21	479	500

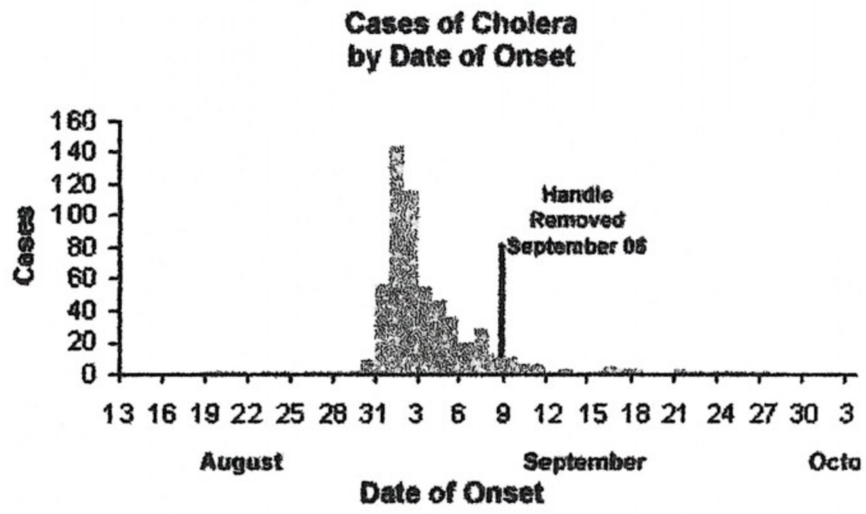
Chattogram Veterinary and Animal Sciences University
One Health Institute
MS in Public Health
January-June Final Examination 2024
Subject: Outbreak Investigation and Surveillance (Practical)
Code: OIS-601
Total marks: 20; Time: 1 hour

(Answer the following questions. Figures in the right margin indicates full marks)

1. Construct a sample questionnaire for an active survey to estimate the prevalence and evaluate the determinants of dengue among the slum community in Chattogram metropolitan area. 10

2. The following are epidemic curves of measles and cholera outbreak. What kind of source you can identify from the epi curves? Explain it. Besides identifying source of epidemic, what other benefits of developing an epidemic curve? 05





3. A total of 1500 children have a rapid strep test (RST) done by a standardized culture technique. Of the 1500 children, 1338 have a negative RST and 162 have a positive RST. In addition, a backup throat culture (gold standard) was done on all children. Of those children with a negative RST, 1302 have a negative throat culture. In the group with a positive RST, 159 have a positive throat culture. Calculate the sensitivity and specificity of the RST. 05

   Construct a 2X2 table to show the data and calculate sensitivity and specificity of RST.

Chittagong Veterinary and Animal Sciences University
One Health Institute
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Course title: Extended Epidemiology and Research Methodology (Theory)
Code: ERM-601
Full marks: 40, Time: 2 hours

(Figures in the right margin indicate full marks. Answer any **4 questions** from the following)

1.	a. Write down the application of epidemiology in public health. What do you understand by frequency and distribution of disease?	4
	b. What is epidemiological triad? Describe it briefly.	6
2.	a. Classify epidemiological study designs and differentiate between observational and experimental study designs.	4
	b. 'Temporal sequence of exposure and outcome cannot be maintained in cross sectional study' – Explain the statement?	4
	c. Write down the advantages of cross-sectional study design.	2
3.	a. What are the tools to measure the frequency of disease and health events? Describe them briefly.	4
	b. What is the measures of association in case-control study? Why we cannot measure incidence from case-control study?	4
	c. Which study designs are prone to recall bias? Explain why.	2
4.	a. Why randomized control trial is known as 'Gold Standard' study design?	2
	b. Describe the steps to be followed in cohort study design.	4
	c. Briefly describe the outbreak, epidemic, endemic and hyper-endemic patterns of disease occurrence.	4
5.	Write short notes (any 2):	5X2
	i. Rothman's causal pie.	
	ii. Determinants of disease outcome.	
	iii. Attributable risk and attributable risk fraction.	

Chittagong Veterinary and Animal Sciences University
One Health Institute
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Course title: Biostatistics (Practical)
Code: BIO-601
Full marks: 20, Time: 1 hour

(Figures in the right margin indicate full marks. Answer all questions from the following)

1. A study results on the weight of Male and Female 2nd year Veterinary Student are given below: 10

Particulars	Male	Female
Sample size	25	20
Mean weight	175lb	165lb
SD	0.35	0.40

Can we come to a conclusion that mean weight of male and female students are significantly different? Find out at 95% confidence interval.

2. Among 200 patient 100 were smokers and the rest 100 were non-smokers. It is evident that among the smokers 6 patient developed cancer and 94 patients did not developed cancer. Again among 100 non-smokers 4 developed cancer and remaining 96 patients were normal. Make a contingency table and find out the association of smoking with lung cancer. 10

Chittagong Veterinary and Animal Sciences University
One Health Institute
Masters in Public Health (MPH)
January-June Semester Final Examination 2024
Course title: Biostatistics (Theory)
Code: BIO-601
Full marks: 40, Time: 2 hours

(Figures in the right margin indicate full marks. Answer any 4 questions from the following)

1. Classify data with example. Mention the method of data collection & Data presentation. 10

2. Define and classify sampling. Write down two different types of sampling method you know well. 10

3. Define & classify Hypothesis. Write down the characteristics of Hypothesis. How we can put interpretation from Hypothesis? 10

4. Draw and label a normal curve. Write down the characteristics and uses of normal curve. 10

5. Write short notes on the following:
   a) Confidence interval b) Standard deviation c) Co-relation d) Regression 2.5X4

Chattogram Veterinary and Animal Sciences University
One Health Institute
MS in Public Health
January-June Final examination 2024
Subject: Outbreak Investigation and Surveillance (Theory)
Code: OIS-601
Total marks: 40; Time: 2 hours

(Answer any 4 from the following questions. Figures in the right margin indicates full marks)

1.	a. Define surveillance, survey and monitoring.	3
	b. Briefly explain the steps of a surveillance system.	5
	c. Enlist the general purposes of a surveillance system.	2
2.	a. Enlist the advantages and disadvantages of active and passive surveillance.	4
	b. What do you understand by risk-based surveillance?	4
	c. Enlist some national and international surveillance information system.	2
3.	a. What do you understand by questionnaire? Discuss the characteristics of a good questionnaire?	5
	b. What is syndromic surveillance? Give example.	5
4.	a. Define outbreak. What are the purposes of outbreak investigation?	3
	b. Mention the steps in a typical outbreak investigation. Name the personnel should be included in an outbreak investigation team along with their roles.	4
	c. What is epidemic curve? Explain with example.	3
5.	a. What do you understand by sensitivity and specificity of a diagnostic test?	5
	b. Show how sensitivity and specificity inversely vary if we change the cut off value of a test result in a continuous scale.	5

Appendix 6

Areas (probability) in one tail of the standard normal distribution

2nd decimal place of Z-score

Z	.00	0.1	.02	.03	.04	.05	.06	.07	.08	.09
.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641
.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
.2	.4207	.4169	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
1.4	.0808	.0973	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
1.5	.0668	.0655	.0643	.0630	.0618	.0606	.05594	.0582	.0571	.0559
1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0037
2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014

* **For areas in two tail against a definite Z-score; just double its corresponding area in one tail**

Appendix 8

Areas of t-distribution (percentage points or critical values of t- distribution)

Level of significance

	0.05	0.025	0.005	0.0005	One tail
df	.1	.05	.01	.001	Two tail
1	6.314	12.706	63.657	636.619	
2	2.920	4.303	9.925	31.598	
3	2.353	3.182	5.841	12.941	
4	2.132	2.776	4.604	8.610	
5	2.015	2.571	4.032	6.859	
6	1.943	2.447	3.707	5.959	
7	1.895	2.365	3.499	5.405	
8	1.860	2.306	3.355	5.041	
9	1.833	2.262	3.250	4.781	
10	1.812	2.228	3.169	4.587	
11	1.796	2.201	3.106	4.437	
12	1.782	2.179	3.055	4.318	
13	1.771	2.160	3.012	4.221	
14	1.761	2.145	2.977	4.140	
15	1.753	2.131	2.947	4.073	
16	1.746	2.120	2.921	4.015	
17	1.740	2.110	2.898	3.965	
18	1.734	2.101	2.878	3.922	
19	1.729	2.093	2.861	3.883	
20	1.725	2.086	2.845	3.850	
21	1.721	2.080	2.831	3.819	
22	1.717	2.074	2.819	3.792	
23	1.714	2.069	2.807	3.767	
24	1.711	2.064	2.797	3.745	
25	1.708	2.060	2.787	3.725	
26	1.706	2.056	2.779	3.707	
27	1.703	2.052	2.771	3.690	
28	1.701	2.048	2.763	3.674	
29	1.699	2.045	2.756	3.569	
30	1.697	2.042	2.750	3.646	
40	1.684	2.021	2.704	3.551	
60	1.671	2.000	2.660	3.460	
120	1.658	1.980	2.617	3.373	
∞	1.645	1.1960	2.576	3.291	

Appendix 9

Areas of x^2 - distribution (percentage points or critical values of x^2 – distribution)

df	Level of significance .10	.05	.01	.001
1	2.706	3.841	6.635	10.827
2	4.605	5.991	9.210	13.815
3	6.251	7.815	11.345	16.268
4	7.779	9.488	13.277	18.465
5	9.236	11.070	15.086	20.517
6	10.645	12.592	16.812	22.457
7	12.017	14.067	18.475	24.322
8	13.362	15.507	20.090	26.125
9	14.684	16.919	21.666	27.877
10	15.987	18.307	23.209	29.588
11	17.275	19.675	24.725	31.264
12	18.549	21.026	26.217	32.909
13	19.812	22.362	27.688	34.528
14	21.064	23.685	29.141	36.123
15	22.996	24.996	30.578	37.697
16	23.542	26.296	32.000	39.252
17	24.769	27.587	33.409	40.790
18	25.989	28.869	34.805	42.312
19	27.204	30.144	36.191	43.820
20	28.412	31.410	37.566	45.315
21	29.615	32.671	38.932	46.797
22	30.813	33.924	40.289	48.268
23	32.007	35.172	41.638	49.728
24	33.196	36.415	42.980	51.179
25	34.382	37.652	44.314	52.620
26	35.563	38.885	45.642	54.052
27	36.741	40.113	46.963	55.476
28	37.916	41.337	48.278	56.893
29	39.087	42.557	49.588	58.302
30	40.256	43.773	50.892	59.703
40	51.805	55.759	63.691	73.402
50	63.167	67.505	76.154	86.661
60	74.397	79.082	88.379	99.607
70	85.527	90.531	100.425	112.317
80	96.578	101.879	112.329	124.839
90	107.565	113.145	124.116	137.208
100	118.498	124.342	135.807	149.449