



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

PAPER: Biostatistics

Course Code: ZOOL-307 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Division of marks is given in front of each question.**

**This Paper will be collected back after expiry of time limit mentioned above.**

**Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)**

- Any descriptive measure calculated from population is  
(a) Parameter (b) Statistic (c) Both a and B (d) None of these
- The addition rule of probability applies to  
(a) Independent events (b) Dependent events  
(c) Mutually exclusive events (d) None of these
- The variance of 8,8,8,8,8,8, is  
(a) 0 (b) 8 (c) 1 (d) none
- Probability always between two values  
(a) 0 and n (b) 0 and 1 (c) -1 and 1 (d) None
- Total number of sample points in sample space when throwing of two dice, are  
(a) 12 (b) 36 (c) 6 (d) 8
- Which of the following is a necessary condition for using a t-distribution  
(a) Small sample size (b) unknown  $\sigma^2$  (c) a & b  
(d) large sample size
- \_\_\_\_\_ always contain the sign of equality  
(a) Null hypothesis (b) Alternative hypothesis  
(c) Composite (d) None
- A characteristic which varies in quantity from one individual to another is called:  
(a) Attribute (b) Variable (c) Statistic (d) Parameter
- The degree of freedom for a contingency table is  
(a) n-1 (b) rc-1 (c) (r-1)(c-1) (d) None
- Mean of a constant value is  
Positive (b) Negative (c) Constant (d) Zero



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. ....

**PAPER: Biostatistics**

**Course Code: ZOOL-307 Part – II**

**MAX. TIME: 2 Hrs. 45 Min.**

**MAX. MARKS: 50**

**ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED**

Q.2	Give short answer of following questions i. If we toss three coins, what is the probability all three coins will have heads? ii. Define the term replication. iii. Differentiate between primary and secondary data. iv. What is the relationship between variance and standard deviation? v. Differentiate between type-I and type-II error. vi. What are parameters of binomial and hypergeometric distribution? vii. Define attribute by giving example. viii. What is the use of one way ANOVA. Give an example ix. Give formula of unpaired t-test. x. Define independent variable with suitable example.	2x10=20																						
Q.3	Do the following numbers indicate a 9:3:3:1 ratio? Explain it with detail 370:100: 90: 40	10																						
Q.4	Calculate the variance, standard deviation, standard error of the mean and coefficient of variation of the data given below.  <table style="margin-left: 40px;"> <thead> <tr> <th>No. of Pods / Plant</th> <th>No of Plants</th> </tr> </thead> <tbody> <tr><td>15-17</td><td>5</td></tr> <tr><td>18-20</td><td>6</td></tr> <tr><td>21-23</td><td>8</td></tr> <tr><td>24-26</td><td>12</td></tr> <tr><td>27-29</td><td>22</td></tr> <tr><td>30-32</td><td>18</td></tr> <tr><td>33-35</td><td>15</td></tr> <tr><td>36-38</td><td>9</td></tr> <tr><td>39-41</td><td>5</td></tr> </tbody> </table>	No. of Pods / Plant	No of Plants	15-17	5	18-20	6	21-23	8	24-26	12	27-29	22	30-32	18	33-35	15	36-38	9	39-41	5	10		
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Q.5	In a forest community the earthworm population was sampled by excavating ten random quadrats (25 x 25 x 30 cm). The number of earthworms per Quadrat are given below. Test whether the distribution of the earthworm population is in accordance with the null hypothesis or deviates from it (null hypothesis states that all classes have equal probability)  <table style="margin-left: 40px;"> <thead> <tr> <th>Qr. Nos</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>No of earthworms.</td> <td>30</td> <td>35</td> <td>41</td> <td>25</td> <td>29</td> <td>40</td> <td>30</td> <td>37</td> <td>31</td> <td>32</td> </tr> </tbody> </table>	Qr. Nos	1	2	3	4	5	6	7	8	9	10	No of earthworms.	30	35	41	25	29	40	30	37	31	32	10
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