DMM-3107
Second Year B. Sc. (Sem. IV) Examination
March/April - 2016
Statistics : Paper - 403
(New Course)

Time : Hours

[Total Marks :]

Q-1.

(1) निर्देशांक परीक्षेकरण कार्यक्रम देखें।

(2) निर्देशांक परीक्षेकरण कार्यक्रम देखें।

(3) जमीनी बाजार्या अन्द्र प्रश्नों पूरा गुणा दशके छै।

(4) सामग्रीय आणि व्यक्तिक उपचारी विनंती करवाली आवाहानी आवश्यक आहे।

(5) प्रश्नांच्या उत्तराच्या सामग्रीप्रदेश केवळ उपयोगकर्त्या हिचे करी सकावे।

Q-2.

(1) परिक्षेत्या परीक्षकी देखील असेल करा।

(2) प - उत्तराने सामग्रीप्रदेश देखील असेल करा।

(3) उक्तप्रमाणे सल्लांतरत विविध: (i) निर्देशांक प्रश्नांक, त्यातून वेगवान प्रश्नांक,

(4) आणि पुढील अनेक पुढील परीक्षेकरण。

Q-3.

(1) हे गुणा निर्देशांक तबप्रश्नांक विनंती करता असतात, तत्काळीन सामग्रीप्रदेश उत्तर देणे,

(2) हे गुणा निर्देशांक प्रभावित विगतत्त्वाची तत्काळीन सामग्रीप्रदेश उत्तर देणे.
ENGLISH VERSION

Instructions:
(1) As per the instruction No. 1 of Page No. 1.
(2) All questions are compulsory.
(3) Figures to the right indicate full marks of the question.
(4) Statistical and logarithmic tables will be supplied on request.
(5) Use of non-programmable scientific calculator is allowed.

Q-1. Answer the following questions.
(a) Define parameter.
(b) For a random sample of 27 pairs of observations are taken from a bivariate normal population, the correlation coefficient is 0.4. Test the hypothesis $H_0: \rho = 0$.
(c) What is Level of significance?
(d) From the following contingency table find the value of $\chi^2$.
Q-2. **Answer any two of the following questions.**

(i) Discussed procedure for testing of hypothesis.
(ii) Explain concept of P value.
(iii) Explain with examples: (a) Null and alternative hypothesis.
      (b) Two-tailed and One-tailed test.

Q-3. **Answer any one of the following questions.**

(i) Explain the method of testing the significance of difference between the means of two large samples.

(ii) Explain the method of testing the significance of difference between the standard deviations of two large samples.

(b) **Answer any two of the following questions.**

(i) Intelligence test on two groups of boys and girls gave the following results:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>75</td>
<td>15</td>
<td>150</td>
</tr>
<tr>
<td>Boys</td>
<td>70</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>

Is there a significant difference in the mean scores obtained by boys and girls?

(ii) In two large populations, there are 30% and 25% people are short sighted respectively. Form these, samples of sizes 900 and 1200 are taken respectively. State your conclusion about the different of proportions.

(iii) A die is thrown 9000 times and a throw of three or four observed 3240 times. Do the data justify the hypothesis of an unbiased die?

Q-4. (a) **Answer any two of the following questions.**

(i) Explain how you will test a specified value of the variance of a normal population, when a small sample is drawn from it.

A sample of size 15 from a normal population gave

\[ \bar{x} = 55.3 \text{ and } \sum (x_i - \bar{x})^2 = 270. \]

Test the hypothesis \( H_0: \sigma^2 = 16. \)

(ii) Define F statistic. Explain F test for testing the difference between two population variances.

(iii) Explain Yate’s correction for \( 2 \times 2 \) contingency table.

(b) **Answer any one of the following questions.**

(i) Discuss \( \chi^2 \) test in testing the ‘goodness of fit’.

(ii) For \( 2 \times 2 \) contingency table \[ \begin{array}{c|c}
     & a & b \\
 \hline
 c & 1 & d 
 \end{array} \]

obtain the formula for \( \chi^2 \).