q.1 If Z is norm (mean = 0, sd = 1)

Find P(Z > 2.64)

Find P(|Z| > 1.39)

CODES AND OUTPUT

Z = dnorm (n,mean = 0, sd = 1,log=FALSE)

> p=(Z > 1.39)

> p

[1] FALSE

p=(Z > 2.64)

[1] FALSE

Q.2

Suppose p = the proportion of students who are admitted to the graduate school of the University of California at Berkeley, and suppose that a public relation officer boasts that UCB has historically had a 40% acceptance rate for its graduate school. Consider the data stored in the table UCBAdmissions from 1973. Assuming these observations constituted a simple random sample, are they consistent with the officerâ..s claim, or do they provide evidence that the acceptance rate was significantly less than 40%? Use an Î± = 0.01 significance level.

ANSWER

**data("UCBAdmissions")**

**UCBAdmissions**

**apply(UCBAdmissions, c(1, 2), sum)**

**mean(UCBAdmissions)**

**sd(UCBAdmissions)**

**test = c(8526) #creating the data set of marks of 4526 students**

**test**

**z = function(test, mu, var){**

**z\_stat = (mean(test) - mu) / (sqrt(var / length(test)))**

**return(z\_stat)**

**} #created a function called z to calculate test statistic of z test**

**z**

**z(test,188.58,140.06) #obtaining the observed value of the test statistic by calling the function**

**-704.4897 #observed value of the test statistic**

**#critical value**

**alpha=.01**

**z.alpha=qnorm(1-alpha)**

**-z.alpha**

**z.alpha**

**[1] 2.326348**

**> -z.alpha**

**[1] -2.326348**

Since the observed statistic is higher than critical value at .01 significance level, the claim seems to be alright .