PG Odd Semester (CBCS) Exam., December—2016

ECOLOGY AND ENVIRONMENTAL SCIENCE

(1st Semester)

Course No. : ECGCC–104

(Statistics and Computer Application in Ecology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

GROUP—A

(Statistics)

(*Marks* : 42)

Answer **one** question from each Unit

UNIT—I

1. *(a)* Define population and sample. Also write a note on simple random sampling (SRS). 2+2=4

(b) Define arithmetic mean (AM) and geometric mean (GM). Explain the uses of these two measures. 5

(c) Prove that standard deviation is independent of change of origin but not of scale. 5

2. *(a)* Write a note on correlation coefficient. 5

(b) Write a note on regression. Explain its uses. 4

(c) Write short notes on skewness and kurtosis. 5

UNIT—II

3. *(a)* Define classical and statistical definition of probability. Three coins are tossed. Find the probability of getting head and tail alternately. 1½+1½+2=5

(b) State and prove the theorem of total probability. 5

(c) Define mutually exclusive events and independent events. 2+2=4

4. *(a)* Write some uses of binomial distribution (BD). 4

(b) Prove that in case of Poisson distribution the mean and variance are equal. 5

(c) Write down the properties of normal distribution. 5

UNIT—III

5. *(a)* What do you mean by statistical hypothesis? Define the following : 2+2+2=6

(i) Null hypothesis

(ii) Alternative hypothesis

(b) Write down the applications of *t*-test. 4

(c) Define type-I and type-II errors with examples. 4

6. *(a)* Define analysis of variance (AOV). What are the assumptions of AOV? 4

(b) Discuss briefly the basic principle of design of experiments. 6

(c) What are the conditions for the application of the ^{2}-test? 4

GROUP—B

(Computer Application)

(*Marks* : 28)

Answer **one** question from each Unit

UNIT—IV

7. *(a)* What are the essential components of a computer? Draw the schematic block diagram of a computer showing its essential components. Discuss the function of each component. 7

(b) What are assembler, compiler and interpreter? 3

(c) Explain the terms 'hardware', 'software', 'firmware' and 'freeware'. 4

8. *(a)* Explain primary memory, secondary memory and cache memory. 3

(b) Discuss the important features of *(i)* desktop, *(ii)* server, *(iii)* workstation and *(iv)* supercomputer. 4

(c) Convert the following binary numbers to equivalent decimal numbers : 4

(i) 11010

(ii) 1011001

(d) Convert the following decimal numbers to equivalent binary numbers : 3

(i) 43

(ii) 97

UNIT—V

9. *(a)* What are LAN, WAN and Internet? 6

(b) What do you understand by the terms *(i)* broadband, *(ii)* Wi-Fi, *(iii)* DTH, *(iv)* Web browser, *(v)* routers, *(vi)* intranet, *(vii)* metadata and *(viii)* topology? 8

10. *(a)* What is desktop publishing? What are its advantages over word processor? 3

(b) Discuss how computers are used in accounting, investment, preparation of budget and inventory control. 5

(c) How are computers used in data analysis? What is a spreadsheet program? How is a spreadsheet program used in data analysis? 6

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