PURBANCHAL UNIVERSITY
2019

Bachelor in Information Technology (B.I.T.)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BIT303SH: Probability & Statistics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions. 2×12=24

1. The following table gives the distribution of wages of workers in two branches of factory:

Monthly wages in ('000' Rs.)	No. of workers	
	Factory	Factory B
10-15	162	64
15-20	208	93
20-25	250	153
25-30	205	104
30-35	167	85

(a) Which branch pays higher average wages?

(b) Which branch pays larger sum per month in paying wages?

(c) Which branch has greater variability in wages in relation to the average wages?

2. The following measurements show the respective height in inches of 8 fathers and their eldest sons.

Fathers	67	63	66	71	69	65	62	70
Son	68	66	65	70	67	67	64	71

Find the regression of son's height on father's height and estimate the height of son for the given height of father as 70 inches. Also determine coefficient of correlation and interpret the result.

19171R

3. Write down the steps for chi-square test for independence of attributes. From the table given below, test at 5% level of significance whether the colour of son's eyes is associated with that of father's eyes:

		Eyes colour in sons	
		Not light	Light
Eyes colour in father	Not light	230	148
	Light	151	471

Group B

Answer SEVEN questions.   7×8=56

4. Draw histogram and hence the frequency polygon on the same graph paper from the data given below.

Monthly Income (in thousand)	No. of persons
0-10	7
10-20	15
20-30	24
30-40	30
40-50	40
50-60	24
60-70	14

5. The arithmetic mean and standard deviation of a series of 25 items were calculated by a student as 20 cm and 6 cm respectively. But while calculating them an item 15 was misread as 30. Find the correct standard deviation.

6. For a sample of 800 that in normally distributed, mean is 66 and standard deviation is 5, find the probability (i) between 65 and 70 (ii) greater than or equal to 72.

7. Give mathematical definition of probability. State and prove addition law of probability for two events.

8. Define random variable and mathematical expectation of a random variable. Also calculate the expectation of number of heads in 10 tosses of a fair coin.

9. Suppose that a manufactured product has 2 defects per unit of product inspected. Using Poisson distribution, calculate the probabilities of finding a product with no defect, at least one defect and with 3 defects:

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Contd. ...

10. A random sample of 50 items taken from a particular population has a mean 250 with standard deviation 28. Construct 95% and 98% confidence limits for the population mean.
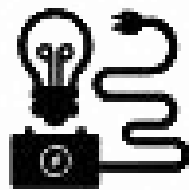
11. Two samples gave the following data.

	Sample I	Sample II
Sample Size	12	10
Mean	40	50
S.D.	8	10

Is the different of the mean significant? Test at 5% level of significance.

12. Write short notes on any TWO:

(a) Tabulation of data

(b) Descriptive statistics

(c) Binomial distribution

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Bachelor in Information Technology (B.I.T.)/Fifth Semester/*Final*

Time: 03:00 hrs.   Full Marks: 60 /Pass Marks: 24

BIT372CO: Data Communication *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1(a) Explain about OSI model with necessary diagram.   6

(b) Differentiate between analog and digital transmission.   6

2(a) What is multiplexing? Explain about time division multiplexing. 2+4

(b) Explain about 1G and 2G network.   3+3

3(a) What is modulation? Explain about AM, FM and PM.   6

(b) Explain about flow control with example.   6

Group B

Answer SIX questions.   6×6=36

4. Explain about digital data analog signal encoding technique with example.

5. What is switching? Explain its types.

6. What is congestion? Why does it occur? Explain token bucket algorithm.

7. Explain Wireless LAN technology.

8. What is Internet protocol? Compare IPV4 with IPV6.

9. What is line of sight? Explain how VPN works?

10. What is Bridge? Compare layer 2 and layer 3 switch.

11. What is interfacing? Explain CRC with example.

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Bachelor in Information Technology (B.I.T.)/Fifth Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BIT377CO: Operating System *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. What is semaphore? How semaphore used to solve the critical section problem. Explain Producer consumer problem using semaphore.   2+2+8

2. Explain deadlock with its condition. Discuss Banker's algorithm with single resourcing with example.   4+8

3. What are different types of memory management technology? Explain dynamic portioning memory management techniques with example.   2+10

Group B

Answer SEVEN questions.   7×8=56

4. What is operating system? Explain OS as a resource manager.

5. What is IPC? Explain Petersion solution to obtain mutual exclusion.

6. Define PCB and context switch. Consider the following snapshot of the process and identify which scheduling algorithm among preemptive shortest job first and a round robin algorithm with time slice of 2ms would give minimum average waiting time.

Process	Arrival time	Burst Time
P0	0	10
P1	1	05
P2	2	07
P3	3	11

7. Explain different operations of directory. What are different file allocation methods? Explain any one example.

8. Suppose that a disk has 100 cylinders 0 to 99. The read write head is currently serving a request at 34 and previous request was at 17 and new requests come in for cylinder 50,40,78,33,90,3 and 20 in that order. Determine the total number of disk movements to satisfy all the pending request for FCFS disk scheduling algorithm.

9. What is distributed system? Explain different feature of distributed OS.

10. Define Real time operating system? Compare hard, soft and firm real-time operating system
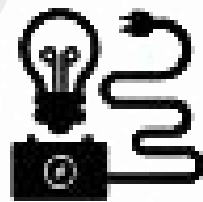
11. Write short notes on any TWO: 4+4
   (a) Segmentation
   (b) Clock
   (c) DMA

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Bachelor in Information Technology (B.I.T.)/Fifth Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BIT307SH: Society & Ethics in IT *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A
Answer TWO questions.   2×12=24

1. Define sociology and discuss the relationship of sociology with economics and computer science.

2. What are the factors of social change? Explain with examples.

3. Define stratification and discuss its type.

Group B
Answer SEVEN questions.   7×8=56

4. Briefly survey the development process of Nepal and prescribe the ways of developing her economically.

5. Why do people resist to social change? Write your views.

6. What is modernization and how does it function as an engine of social transformation?

7. E-governance is a virtual form of governance making government activities efficient, effective maintaining transparency in its day-to-day affairs. Justify this statement.

8. How does e-commerce help the countries like Nepal? Put forward your views.

9. What is corporate responsibility? Suggest the ways of implementing it practically in the countries in Nepal.

10. What do you mean by national integration? How can it be strengthened?

11. Write short notes on any TWO.
    (a) Innovation and diffusion
    (b) Technological changes and its effects on society
    (c) Indicators of development

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Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BIT375CO: Computer Graphics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. How Bresenham's line drawing algorithm can be explained with example?

2. Discuss different types of two-dimensional transformations. Explain Pivot-point rotation with example.

3. What are different hidden line and hidden surface removal techniques? Explain back face detection method in detail.

Group B

Answer SEVEN questions.   7×8=56

4. What is Computer Graphics? Explain the various applications of computer graphics in brief.

5. Write the midpoint circle drawing algorithm and digitize the circle $x^2+y^2=36$.

6. List all input graphical devices and explain light pen and mouse in detail. What are different type of 3D transformation?

7. Why hidden line and hidden surface removal techniques are required? Explain Z-buffer method.

8. Discuss about need of shading in engineering data visualization.

9. What is animation? Discuss its applications and today's trend.

10. Why do we need machine independent graphical language? Explain different types of file format.

11. Write shot on any TWO:
    (a) Beam Penetration Method   (b) Bezier curve
    (c) Window to view port transformation

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Bachelor in Information Technology (B.I.T.)/Fifth Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BIT374CO: Web Technology-II *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1(a) What is XML? Explain it with suitable example.   2+2

(b) What is XML document validation? Explain XML DTD with suitable Example.   2+6

2(a) Perform the CRUD operation for the following form.   8

Patient ID

Name

Address

Contact

Gender   ○ Male   ○ Female

[Save]   [Show]   [Update]   [Delete]

(b) Explain the role of regular expression in web development.   4

3(a) Write a program to print fibonacci series using recursive function.   4

(b) What are MYSQL functions? Explain string manipulation function used in PHP.   4+4

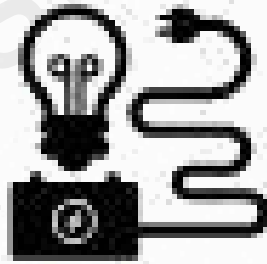## Group B

Answer SEVEN questions.   7×8=56

4. Differentiate Dynamic and Static Web Page. What is the role of tier technology in the web application development?

Contd. ...

5. What is Exception in PHP? How can you handle exception in PHP?

6. Discuss HTTPS and FTP in detail.

7. What are various access modifier used in PHP? How can you implement inheritance in PHP?

8. Why we need responsive website? Discuss various MVC framework of PHP.

9. Define login and authentication. Write a program in PHP to display prime number between 1 - 100.

10. What is semantic web? Explain the role of RDF.

11. Write short notes on any TWO:
   (a) OWL
   (b) Session and Cookie
   (c) AJAX

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Follow Your Imaginations...