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Paper Code & Roll No. to be filled in your Answer Book

Roll No. | | | | | | | | | | |

B. Tech. (ME)

UTU (SEM.-VI) -2015

End Semester Examination

FLUID MACHINERY

Time : 3 Hrs.   Max. Marks :100

Attempt any four parts.   (5×4=20)

(a) Explain impulse momentum principle. Derive an expression for moment of momentum equation.

b) A pelton wheel has a mean bucket speed of 10m/sec. with a jet of water flowing at the rate of 700 liters/sec. Under a head of 30m. The buckets deflect the jet through an angle of 160°. Calculate the power given by water to the runner and hydraulic efficiency of the turbine. Assume coefficient of velocity a 0.98.

c) Differentiate between impulse and reaction turbine. Also write in brief about the different parts of the reaction turbine.

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(e) In CSMA/CD, after the fifth collision, what is the probability that a node chooses $K = 4$? The result $K = 4$ corresponds to a delay of how many seconds on a 10 Mbps Ethernet?
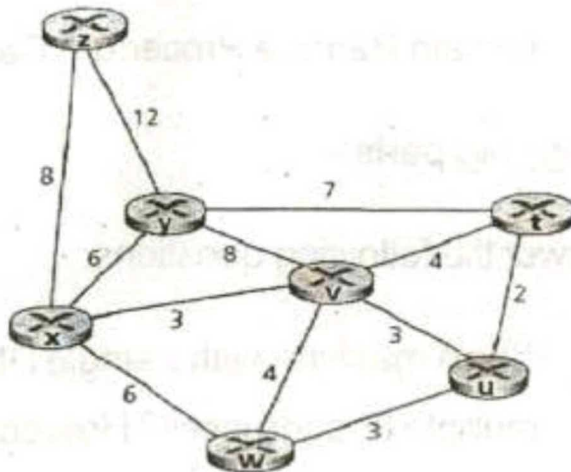
(f) Discuss Sliding Window protocol in detail.

Q3. Attempt any two parts : (10×2 = 20)

(a) A large number of consecutive IP address are available starting at 198.16.0.0 Suppose that four organizations, A, B, C and D, request 4000, 2000, 4000, and 8000 addresses, respectively, and in that order. For each of these, give the first IP address assigned, the last IP address assigned, and the mask in the w.x.y.z/s notation.

(b) Discuss the IPv4 header. What is fragmentation in IPv4? Explain with an example.

(c) Compute the final routing table at x in the following diagram using any routing protocol you know.

Q4. Attempt **any two** parts: (10×2 = 20)

(a) Discuss TCP connection establishment procedure. How receiver window management is done in TCP?

(b) Answer the following questions:

(i) Differentiate between symmetric cryptography and public key cryptography.

(ii) Generate the public and private key in RSA where P = 5 and Q = 11. Choose any valid value for E.

(5)

(c) Answer the following questions:

(i) Discuss different data compression techniques

(ii) Explain Remote Procedure Call

Q5. Attempt any two parts: (10×2 = 20)

(a) Answer the following questions:

(i) Can a machine with a single DNS name have multiple IP addresses? How could this occur?

(ii) Distinguish between recursive and iterative DNS query.

(b) Answer the following questions:

(i) Why does FTP use two ports instead of one? Explain the working of FTP.

(ii) Discuss the SMTP commands for sending an email. What is the role of MIME in e-mails.

(c) Answer the following questions:

(i) What is a port? What is a socket?

(ii) Describe web caching in http.

—x—