ADAMAS UNIVERSITY

END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: Computer Science and Engineering
PAPER TITLE: Information Retrieval
Maximum Marks: 40
Total No of questions: 8

Semester: VIII

PAPER CODE: ECS44104
Time duration: 3 hours
Total No of Pages: 1

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** "The technique to find material of an unstructured nature that satisfies an information need from within large collections". Name the technique and list some of its applications.
b) What do you mean by Search Engine?
c) List some advantages of open source software.
d) Mention the types of data available.
e) Define indexing.

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. Any search engine requires some process of searching. Can you mention some of these processes. Briefly explain the mentioned processes.

3. State soundex algorithm for phonetic correction with example.

4. State Rocchio's Classification Algorithm.

5. State the differences between dynamic and distributed indexing.

GROUP –C

Answer *any two* of the following $2 \times 10 = 20$

6. a) What is vector space model?
b) What is inverse document frequency & TF-IDF weighting.
c) Define stemming with the help of an example.

7. a) Name some clustering algorithms used in Information Retrieval? If possible, list down some application of clustering in any sector.
b) What are the two main problems with k-means and how they can be addressed?

8. a) What do you understand by precision and recall? b) What is dynamic Indexing? Explain the logarithmic merge Algorithm and its necessity.
c) Define Stemming with the help of an example.

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech/M.Tech
Stream: ECE, CSE/CSE
PAPER TITLE: Internet of Things (IoT)
Maximum Marks: 40
Total No of questions: 08

Semester: VIII/II
PAPER CODE: EEC61128
Time duration: 3 hours
Total No of Pages: 02

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
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Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** Enlist four characteristics of IoT devices.
b) Explain Moore's Law in brief.
c) Explain the difference between a smart device and an intelligent device with suitable example.
d) Mention the names of three data protocols used in IoT.
e) Write down the full form of CIA Triad in context of Cybersecurity requirements.

GROUP –B
(Short Answer Type Questions)
Answer *any three* of the following $3 \times 5 = 15$

2. a) What is SMQTT? Explain the four main stages of SMQTT algorithm. Also mention few applications of SMQTT.
b) Explain why a single networking platform is generally not enough for an IoT device? [4+1]

3. a) Compare CISC based processors to RISC based processors in a tabular form.
b) Explain RSB arithmetic operation with the help of suitable diagram. [2.5+2.5]

4. a) Enlist the 9 frame types used in AMQP protocol and explain their significance in brief.
b) Mention the setup requirements for Raspberry Pi. [3+2]

5. a) Which two protocols are used for routing between PAN and IPv6 in 6LoWPAN?
b) Compare MQTT and CoAP protocols in tabular form. [2+3]

GROUP –C
(Long Answer Type Questions)
Answer *any two* of the following $2 \times 10 = 20$

6. a) Write a sample program (Pseudocode) in assembly language to read a data from an input port (IN), then add this value with the content of register E and multiply with a constant value (10) and send the computed data to an output port.
b) Explain the significance of the following Arduino functions: i) Delay () ii) pinMode (). Name the data types supported by Arduino. [5+5]

7. a) Explain the two topologies (Piconet and Scatternet) for Bluetooth with suitable diagrams.
b) Explain in your own words the meaning of the terms i) Interoperability ii) Heterogeneity in context of IoT environment. [5+5]

8. a) Explain the following topologies with the aid of suitable diagrams: i) Star topology ii) Mesh Topology. Also discuss their advantages and disadvantages in your own words.
b) Explain Public cloud, Private cloud and Hybrid Cloud deployment models with their advantages. [4+6]

ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech — Semester: VIII
Stream: ME
PAPER TITLE: Management II (Entrepreneurship development)
PAPER CODE: MBA44142
Maximum Marks: 40 — Time duration: 3 Hours
Total No of questions: 00 — Total No of Pages: 00

Instruction to the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
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3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $\mathbf{5 \times 1 = 5}$

1. **a)** Define marketing management.
   b) What is the main difference between centralization and decentralization?
   c) Define an initiative.
   d) What did Taylor want to communicate through mental revolution?
   e) Define Unity of direction.

GROUP –B
(**Short Answer Type Questions**)

Answer *any three* of the following $\mathbf{3 \times 5 = 15}$

2. Explain briefly 'Remuneration of Employees' and 'Scalar Chain' as principles of general management.
3. What are the differences between Fayol's and Taylor's approach of management?
4. Explain 'unity of command' and 'equity' as principles of general management.
5. Write down few differences between unity of command and unity of direction.

GROUP –C
(**Long Answer Type Questions**)

Answer *any two* of the following $\mathbf{2 \times 10 = 20}$

6. Pawan is working as a Production Manager in CFL Ltd. which manufactures CFL bulbs. There is no class-conflict between the management and workers. The working conditions are very good. The company is earning huge profits. As a policy, the management shares the profits earned with the workers because they believe in the prosperity of the employees.

a) State the principle of management described in the above paragraph.
b) Identify any two values which the company wants to communicate to society.

7. Volte India Ltd. is manufacturing LED bulbs to save electricity. However, it is running under heavy losses. To revive from the losses, the management shifts the unit to a backward area where labour is available at a low cost. The management also asks the workers to work overtime without any additional payments and promises to increase the wages of the workers after achieving its mission. Within a short period, the company starts earning profits because both the management and workers honour their commitments.

a) State the principle of management described in the above paragraph.
b) Identify any two values which the company wants to communicate to society.

8. Explain work study techniques that help in developing standards to be followed throughout the organization.

ADAMAS UNIVERSITY

School of Engineering and Technology

END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: CSE
PAPER TITLE: Operation Research
Maximum Marks: 40
Total No of questions: 08

Semester: VIII

PAPER CODE: SMA44104
Time duration: 3 Hours
Total No of Pages: 02

Instruction to the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
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Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** In a maximization LPP, what is the coefficient for an artificial variable in objective function?
b) When the solution of a transportation problem with m-rows and n-columns is non degenerate?
c) For any basic feasible solution of a general assignment problem, having a square pay-off matrix of order n, what is the number of assignment?
d) How can you classify a game theory problem?
e) Define carrying cost, in inventory model.

GROUP –B

(Short Answer Type Questions)

Answer *any three* of the following $3 \times 5 = 15$

2. If possible solve the following LPP without using graphical method:

$$Max \quad z = 3x_1 + 5x_2$$
$$\text{subject to,} \quad x_1 - 2x_2 \le 6$$
$$x_1 \le 10$$
$$x_2 \ge 1$$
$$x_1, x_2 \ge 0.$$

3. For what value of λ the game with the following pay-off matrix is strictly determinable?

		Player B		
		B_1	B_2	B_3
Player A	A_1	λ	6	2
	A_2	-1	λ	-7
	A_3	-2	4	λ

4. Solve the maximization assignment problem, where the profit matrix is given as follows:

Job	*I*	*II*	*III*	*IV*
Person				
A	10	14	12	13
B	8	7	8	10
C	15	15	14	12
D	9	11	10	11

5. Find the sequence that minimizes the total time T required in performing following jobs on three machines in the order 'ABC'. Processing time in (in Hours) are given in the following table:

Job		1	2	3	4	5
Machine	*A*	8	10	6	7	11
Machine	*B*	5	6	2	3	4
Machine	*C*	4	9	8	6	5

Also find T and idle time for both the machine.

GROUP –C
(Long Answer Type Questions)

Answer *any two* of the following $2 \times 10 = 20$

6. Find the optimal solution of the following primal LPP by solving it's dual:

$$\text{Max} \quad z = 5x_1 - 2x_2 + 3x_3$$
$$\text{subject to,} \quad 2x_1 + 2x_2 - x_3 \geq 2$$
$$3x_1 - 4x_2 \leq 3$$
$$x_2 + 3x_2 \leq 5$$
$$x_1, x_2, x_3 \geq 0.$$

7. Solve the game problem, using rule of dominance, whose pay off matrix is as follows:

			Player *B*			
			B_1	B_2	B_3	B_4
		A_1	3	2	4	0
Player	*A*	A_2	3	4	2	4
		A_3	4	2	4	0
		A_4	0	4	0	8

8. Derive optimum economic lot size formula in the usual notations when the rate of replenishment is finite and there are no shortages.

ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: CSE
PAPER TITLE: Medical Electronics
Maximum Marks: 40
Total No of questions: 08

Semester: VIII

PAPER CODE: SPH44104
Time duration: 3 Hours
Total No of Pages: 02

Instruction to the Candidate:
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Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** What is *gyromagnetic ratio* in MRI imaging technique?

b) What is colonoscopy?

c) What is the basis of Nuclear Medicine techniques?

d) Write the expression for linear absorption coefficient of X-rays.

e) Name an imaging technique that can detect rheumatoid arthritis.

GROUP –B
(Short Answer Type Questions)

Answer *any three* of the following $3 \times 5 = 15$

2. Explain the working principle of EOG machine. What are the sources of error in this measurement? (4+1=5)

3. What are the different bio-signals? What are the roles of (a) Pre-amplifier and (b) Signal processing stage in a typical bio-sensor? (4+1=5)

4. Explain with the help of a diagram how electrical impedance spectroscopy technique is used to count blood components in vitro. (5)

5. What is the frequency range for medical ultrasound imaging? What are the functions of transducers in Echo Doppler diagnosis technique?

GROUP –C
(Long Answer Type Questions)

Answer *any two* of the following $2 \times 10 = 20$

6. Explain different steps of an ECG bio-telemetry system. Write its importance. (8+2=10)

7. Explain Fire-safety measures in hospital systems. With the help of a neat diagram explain the working of a Spirometer machine. (5+5=10)

8. How are X-rays generated in a X-ray tube? Explain any one technique for X-ray detection. (5+5=10)