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

Name of the Program: B.Tech Semester: VIII
Stream: ECE
PAPER TITLE: Artificial Intelligence PAPER CODE: ECS44101
Maximum Marks: 40 Time duration: 3 hours
Total No of questions:8 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.
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

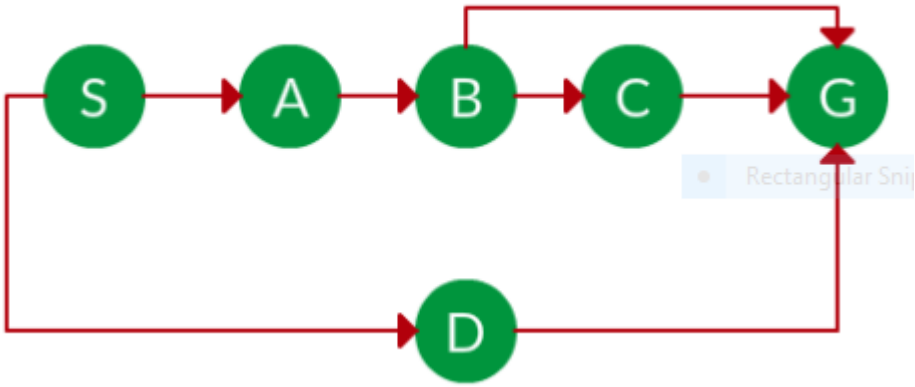
Answer all the questions of the following **$5 \times 1 = 5$**

1. **a)** Define Classical AI.
b) What is Turing test in AI?
c) How sensor based planning streamline volume of data for further processing?.
d) Suggest role of heuristic function in decision making.
e) Define Means end analysis.

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

2. Explain simulated annealing technique, Why most researcher refer this technique suggest your answer with suitable example. 2+3

3. Explain BreadthFirstSearch and DepthFirstSearch? From the below graph draw a searching tree for breadth first search and depth first search. 2+3



4. Explain Simple reflex agent and learning agent with suitable diagram? From these two which one learn faster to emulate real life problem solving. 2+3

5. What is CNF? Convert the following sentence to 1st order predicate logic(i)All trees are living beings,(ii)Some mushrooms have blue green pigment,(iii)Some fruits are not edible,(iv)Some fruits are poisonous. 2+3

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

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

6. Explain i)Deep learning and CNN, ii)Constraint satisfaction problem,(iii)AO* algorithm? 3+3+4

7. (i)What is probalistic reasoning ? 3+7

(ii)In a manufacturing company J,K,L produces 25%,35%,40% of the bolts respectively.Out of the total bolts 5%,4%,2% are defective bolts from the respective company.The bolt is drawn at random method.If the bolt is defective what is the probability that it is manufactured by L?

8. (i)Describe knowledge based agent and it's various phases of design to inference - action to update knowledge base? 5

(iii)How A* algorithm enhanced learning tree for finding optimal path suggest a suitable example with a neat diagram. 5

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

Name of the Program: B.Tech. **SEMESTER-VIII**
Stream: ECE
PAPER NAME: Advanced Digital Signal Processing **PAPER CODE: EEC61102**
Maximum Marks: 40 **Time: 3 Hours**
Total No of questions: 08 **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.
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) What is the other name for zero state response?

(b) Which parameters are required to calculate correlation between signals?

(c) Auto correlation is even function or odd function?

(d) What are the four operations in proper sequence for convolution?

(e) When is LTI system termed causal?

Group – B

(Short Answer Type Questions)

Answer ***any three*** of the following.

$3 \times 5 = 15$

2. What are pseudo-circulant matrices? [5]

3. Explain briefly Linear Periodically Time Varying Systems (LPTVs). [5]

4. Name a few applications of ADSP and explain them. [5]

5. Draw the lattice implementation of 2-channel real-coefficient FIR perfect reconstruction QMF Bank (loss less). [5]

Group – C

(Long Answer Type Questions)

Answer ***any two*** of the following

$2 \times 10 = 20$

6. State and prove the theorem for loss less FIR transfer matrix that is free of cosines and sines. [10]

7. Compare the design examples for three FIR two-channel QMF Banks. $A_S = 38dB$and $\omega_S = 0.586\pi$. [10]
8. Explain the working principles of Block digital filters. [10]

ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: ECE
PAPER TITLE: Elective-VII (Image and Video Processing)
Maximum Marks: 40
Total No of questions: 8

Semester: VIII
PAPER CODE: EEC61107
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.
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)** Define image processing with examples.
b) What is blind spot?
c) Explain constructs stretching
d) Define Hue and write the range of H in HSI color model
e) What is odder statistic filter? Explain with an example.

GROUP –B
(Short Answer Type Questions)

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

2.
a) What is saturation in HSI color model? [1+4=5]
b) The values of a given pixel in RGB color model R=120, G= 200 and B=100. Calculate the values of H, S and I for HSI model representation.

3.
a) What is impulse noise? [2+3=5]
b) Write exponential and uniform noise model with diagram

4.
a) What are unsharp masking and highboost filtering? [2+3=5]
b) Explain image sharping using Laplace filter?

5.
a) What is gray level slicing? [2+3=5]
b) Explain image negative and log transform with transform function

GROUP –C
(Long Answer Type Questions)

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

6.
a) Explain CMY color model? [2+4+4=10]
b) The values of a given pixel in HIS model are H=200^o, S= 0.7 and I=230. Calculate the values of R, G and B for RGB model representation.

c) Write the short note on color image sharpening.

7. [1+3+4+2=10]

a) What is notch filter? Write the TF of Butterworth notch filter and explain it with parameters.
b) Write the short note on adaptive median filter
c) Explain max and min filter

8. [5+5=10]

a) Write the short note on homomorphic filtering
b) Write down the different components of image processing system with block diagram

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

Name of the Program: B.Tech. **SEMESTER-VIII**
Stream: ECE
PAPER NAME: Semiconductor Device Modelling **PAPER CODE: EEC61110**
Maximum Marks: 40 **Time: 3 Hours**
Total No of questions:08 **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.
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) What doping type is required for n-type semiconductor?
(b) Which semiconductor has green radiation for LED?
(c) What is Coulomb blockade?
(d) Define the concept of hole in a semiconductor.
(e) Name a few software packages for device simulation.

Group – B

(Short Answer Type Questions)

Answer ***any three*** of the following.

$3 \times 5 = 15$

2. What are the correction factors for non-ideal behaviour of diodes? [5]
3. Explain the electrical to optical power conversion in diode LASERs. [5]
4. What are the advantages of multiple quantum well LASERs. [5]
5. State the 5 design goals of diode LASERs. [5×1]

Group – C

(Long Answer Type Questions)

Answer ***any two*** of the following

$2 \times 10 = 20$

6. Explain in detail the small signal analysis of diodes. [10]

7. Analytically explain the types of LASERs resulting from quantum confinement. Highlight their difference with bulk LASERs in terms of density of states and peak gain coefficients. [10]
8. Draw and explain the significance of numerical Newton-Raphson method in context to semiconductor device modelling. [10]

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.
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)** 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
Stream: ECE/EE
PAPER TITLE: Management II
Maximum Marks: 40
Total No of questions: 00

Semester: VIII

PAPER CODE: MBA44116
Time duration: 3 Hours
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.
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 $\mathbf{5 \times 1 = 5}$

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.
