KADI SARVA VISHWAVIDHYALAYA
B.E. MECHANICAL Semester–VII EXAMINATION NOV-2016

Subject: Quality and Reliability Engineering **Date: 21/11/2016**
Subject Code: ME-706-D **Time: 10:30 am to 01:30 pm**
Total Marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

SECTION-I

Que:1	**(A)**	What do you mean by quality? Discuss.	[5]
	(B)	Write short note on Quality Control and Quality Assurance.	[5]
	(C)	Explain various element of TQM.	[5]
		OR	
	(C)	Define TQM and explain what do you understand by TQM?	[5]
Que:2	**(A)**	Explain characteristics of a Good kaizen.	[5]
	(B)	Explain benefits of 5-S.	[5]
		OR	
	(A)	Write a short-note on quality circle and its benefits.	[5]
	(B)	What do you know about Failure Mode and Effect analysis.	[5]
Que:3	**(A)**	Explain benefits of Design of experiments.	[5]
	(B)	Explain Techniques of JIT.	[5]
		OR	
	(A)	What is Taguchi approach to roust design?	[5]
	(B)	Explain Advantages and Disadvantages of JIT.	[5]

SECTION-II

Que:4	**(A)**	What are the benefits of TPM.	[5]
	(B)	What are the benefits of ISO 9000?	[5]
	(C)	What are the TPM pillars? Explain in details.	[5]
		OR	
	(C)	Write and discuss the 14 points suggested by Deming for implementation of TQM.	[5]
Que:5	**(A)**	Explain benefits and limitations of QFD.	[5]
	(B)	Explain the need of Six Sigma.	[5]
		OR	
	(A)	What are the benefits of World Class Manufacturing?	[5]
	(B)	Explain DMAIC methodology in details.	[5]
Que:6	**(A)**	Explain fundamental laws of Probability.	[5]
	(B)	Explain types of Benchmarking.	[5]
		OR	
	(A)	Explain MTTF and MTBF in reliability concepts.	[5]
	(B)	Explain advantages and implementation of reliability engineering program.	[5]

Best of luck

KADI SARVA VISHWAVIDHYALAYA

BE M.E. ~~AUTOMOBILE~~ Semester–~~III~~ VII Nov/Dec-2016

Subject: Robotics and Artificial Intelligence **Date: 21/11/2016**
Subject Code: ME706-A **Time: 10:30 am to 01:30 pm**
Total Marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work.**

SECTION-I

Que:1 **(A)** Explain strategies for search. **[5]**

(B) Write short note on forward chaining algorithm. Add suitable example. **[5]**

(C) Write short note on Breadth-first search. **[5]**

OR

(C) Write short note on Depth-first search. **[5]**

Que:2 **(A)** Briefly explain 8-puzzle problem. **[5]**

(B) Explain Back tracking (BT). **[5]**

OR

(A) Describe and solve Tower of Hanoi puzzle. **[5]**

(B) Write short note on "Tree Structure". **[5]**

Que:3 **(A)** Describe "Problem" in terms of AI. **[5]**

(B) Describe structure of state space. **[5]**

OR

(A) Describe following terms: **[5]**
1) Algebric function
2) Domain
3) Range
4) Mapping

(B) Exaplin : 1-D array,determine the Big-O of an algorithm. **[5]**

SECTION-II

Que:4 **(A)** Discuss the AI Problem Characteristics in detail. **[5]**

(B) Demonstrate the use of Repeat Predicate in Prolog with example **[5]**

(C) Solve The following Crypt arithmetic problem:

```
  BASE
+BALL
------
 GAMES
```
[5]

OR

(C) Solve The following Crypt arithmetic problem:

```
  TOM
+NAG
-----
 GOAT
```
[5]

Que:5	**(A)**	Explain Artificial Neural Network in brief	**[5]**
	(B)	Write short note on fuggy logic.	**[5]**
		OR	
	(A)	Classify robot according to industrial application.	**[5]**
	(B)	Describe common characteristics of robot specification	**[5]**
Que:6	**(A)**	Explain composite homogeneous transformations	**[5]**
	(B)	Explain pick and place operation	**[5]**
		OR	
	(A)	Explain degree of freedom in robot with neat sketch.	**[5]**
	(B)	Explain: (i) Grasp planning (ii) Fine motion planning	**[5]**

All the best... ☺

KADI SARVA VISHWAVIDHYALAYA
B.E. MECHANICAL (Semester–VII) Nov/Dec-2015

Subject: Robotics & Artificial Intelligence **Date: 05/12/2015**
Subject Code: ME-706-A **Time: 10:30 am to 01:30 pm**
Total Marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

SECTION-I

Que:1 (A) What is Hill Climbing? Explain Simple Hill Climbing and Steepest-Ascent Hill Climbing. [5]
(B) Differentiate the DFS and BFS with merits and demerits [5]
(C) Explain A* algorithm [5]

OR

(C) Explain AO* algorithm [5]

Que:2 (A) Differentiate the DFS and BFS with merits and demerits [5]
(B) Solve the following Crypt arithmetic Problem. [5]

```
  SEND
+MORE
MONEY
```

OR

(A) Solve Water-Jug Problem using Production Rule System [5]
(B) Solve the following Crypt arithmetic Problem. [5]

```
  BEST
+MADE
MASER
```

Que:3 (A) Explain missionaries and cannibal problem in detail and find solution for the same. [5]
(B) Describe the Expert System Development Procedure. [5]

OR

(A) Explain Expert System Architecture In Artificial Intelligence. [5]
(B) Solve Travelling Salesman Problem using any AI technique. [5]

SECTION-II

Que:4 (A) Explain the different approaches to knowledge representation. [5]
(B) Explain general properties of solution. [5]
(C) Explain CUT, FAIL & REPEAT predicates in PROLOG. [5]

OR

(C) Explain Artificial Neural Network in brief. [5]

Que:5 (A) Explain the Minimax Procedure with example. [5]
(B) Demonstrate the use of Repeat Predicate in Prolog with example [5]

OR

(A) Explain the concentric layout of multiple part feeders [5]

(B) Explain Goal Stack planning using suitable example [5]

Que:6 (A) Explain pick and place operation. [5]

(B) Explain 6-D.O.F. robot with neat sketch. [5]

OR

(A) Explain a four axis SCARA robot [5]

(B) Explain: (i) Grasp planning (ii) Fine motion planning [5]

Best of luck

KADI SARVA VISHWAVIDYALAYA
B.E. MECHANICAL Semester–VII

Subject: Quality and Reliability Engineering **Date: 05/12/2015**
Subject Code: ME-706D **Time: 10:30 am to 01:30 pm**
Total Marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. All questions are **Compulsory**.
3. Indicate **clearly**, the options you attempt along with its respective question number.
4. Use the last page of main supplementary of **rough work**.

SECTION-I

Que:1 **(A)** Explain the principles of Total Quality Management (TQM) and also mention various benefits of implementing TQM in an organization. **[5]**

(B) Explain the concept of Quality Circles. List the prerequisites of forming a Quality Circle. List advantages and drawbacks of Quality Circles. **[5]**

(C) Explain the KAIZEN Process. **[5]**

OR

(C) Give two definitions of Quality. Explain the statement – "TQM encompasses quality control, quality assurance as well as quality management." **[5]**

Que:2 **(A)** Describe the following problem solving techniques with suitable examples: **[5]**
1. Pareto diagram
2. Cause and Effect diagram

(B) Discuss 5-S and its benefits. **[5]**

OR

(A) Discuss the procedure of making Quality Function Deployment (QFD) and its benefits. **[5]**

(B) Explain Failure Mode and Effects Analysis (FMEA). **[5]**

Que:3 **(A)** Discuss the similarities and differences between TQM and TPM. **[5]**

(B) Briefly explain the concepts of Lean and Agile Manufacturing. **[5]**

OR

(A) Let us consider to deliver car on time three items are on shortage that is engine, gear box and chassis. Probability of getting engine on time is 0.8, probability of getting gear box on time is 0.9 and probability of getting chassis on time is 0.7. What is the probability car will be delivered on time? **[5]**

(B) Explain PDCA cycle in details with suitable example. **[5]**

SECTION-II

Que:4 **(A)** Define reliability. Draw typical bath tub curve and explain its phases. **[5]**

(B) What do you understand by the word Robust Design? How Taguchi Techniques helps achieving robust design of a product? **[5]**

(C) What is TPM? Explain the objectives and benefits of implementing TPM in an industry **[5]**

OR

(C) How Just In Time (JIT) production system can be achieved in an organization? What are the merits and demerits of JIT production system? **[5]**

Que:5 **(A)** What is KANBAN? Discuss two card KANBAN system **[5]**

(B) Define Maintainability, Availability, Failure Rate, Failure density and Mean Time To Repair. **[5]**

OR

(A) Explain QS 9000 standards in details. **[5]**

(B) Dicuss Pokayoke with suitable examples. **[5]**

Que:6 **(A)** Mother board of a laptop has four components P, Q, R and S. 400 numbers of the mother board were subjected to accelerated operation tests which have been equivalent to 3000 hours of normal operation. The following data is available from the tests. **[5]**

Components	No of failures
P	6
Q	4
R	48
S	10

Find the reliability of the mother board. Also calculate the MTBF for the four components

(B) Define probability. Explain fundamental laws of probability. **[5]**

OR

(A) Identify and explain three main types of benchmarking. In what circumstances would each type be most appropriate? What are the advantages of using benchmarking as an improvement tool? **[5]**

(B) What is Six Sigma? Explain the concepts, feature and benefits of Six Sigma to an organization **[5]**

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