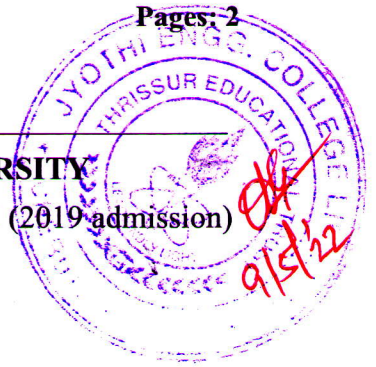


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech (Hons) Degree Examination December 2021 (2019 admission)

**Course Code: MET397****Course Name: FLUID POWER AUTOMATION**

Max. Marks: 100

Duration: 3 Hours

PART A*(Answer all questions; each question carries 3 marks)*

Marks

- | | | |
|----|--|---|
| 1. | Draw the hydraulic symbol for the following,
(i) Double acting cylinder
(ii) Pilot operated check valve
(iii) 3/2 directional valve | 3 |
| 2 | List out any six field of application of fluid power. | 3 |
| 3 | What is a hydraulic cylinder? List out its types. | 3 |
| 4 | What is cylinder cushioning? What is its purpose? | 3 |
| 5 | How do a simple pressure relief valve and compound pressure relief valve differ in operation? | 3 |
| 6 | What is a servo valve? Mention the purpose of feedback in a servo system. | 3 |
| 7 | What are the required hydraulic circuit design informations? | 3 |
| 8 | Write down the steps of Karnaugh- Veitch mapping method. | 3 |
| 9 | Write a short note on electric relay with an application. | 3 |
| 10 | Draw the block diagram of PLC construction and list the components of PLC. | 3 |

PART B*(Answer one full question from each module, each question carries 14 marks)***Module -1**

- | | | |
|----|---|----|
| 11 | a) Compare hydraulic and pneumatic systems. | 7 |
| | b) Briefly explain the classification of pump | 7 |
| 12 | Explain the working, construction and performance of unbalanced vane pump with neat sketch. | 14 |

Module -2

- 13 With neat sketch explain the working of various separator type gas loaded accumulator. 14
- 14 Explain different methods of applying linear motion with diagram and also write down the expression for cylinder force of each method. 14

Module -3

- 15 Describe the various types of location of a flow control valve with neat sketch. 14
- 16 With neat sketch describe the working and construction of two stage servo valve. 14

Module -4

- 17 Draw and explain the circuit of drilling operation using sequencing valve. 14
- 18 Design and draw a hydraulic circuit for A+, B+, B-, A- sequencing operation using cascade method and explain. 14

Module -5

- 19 Draw the hydraulic circuit and ladder diagram for control of a cylinder using single limit switch and explain the sequence of operation. 14
- 20 Describe the various approaches for entering the program into the PLC. 14
