

**HUMAN VALUES
(Electrical and Electronics Engineering)****Time: 3 Hours****Max Marks: 60**

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

UNIT-I

1. a) Where do we stand today with respect to problems of individual, family, society, nature levels? 6M
- b) "Natural acceptance is innate, invariant and universal." Explain this statement with an example. 6M

(OR)

2. a) Write a short note on the need for value education in today's scenario. 6M
- b) What is the meaning of prosperity? How can you say that you are prosperous? 6M

UNIT-II

3. a) Make a list of your 10 desires, thought and expectations. Categorize where they are originating from pre-condition, sensation or natural acceptance? 6M
- b) Explain the human being is coexistence of self and body? 6M

(OR)

4. a) What is more Basic in Sanyam or Swasthya? Where are we investing most of our energy and resources today – in ensuring Sanyam or in treatment of the un healthy Body? 6M
- b) "I am the Seer. I am the Doer. I am the Enjoyer". The Body is my essential Instrument. Explain 6M

UNIT-III

5. a) What is Justice? What are its four elements? Is it a continuous or a temporary need? 6M
- b) Define 'Respect' and discuss the basis of 'Respect'? 6M

(OR)

6. a) Explain the term Excellence and discuss the difference between to be special and excellence with your examples. 6M
- b) "Feeling of being related to all is Love" Discuss. 6M

UNIT-IV

7. a) What are the 4 orders of nature? Briefly explain the relationship between the 4 orders. 6M
- b) What do you mean by 'innateness'? What is the innateness in the four orders? 6M

(OR)

8. a) What do you mean by co-existence? 6M
- b) What are the natural characteristics (swabhava) of human order? Explain. 6M

UNIT-V

9. a) What would be the pragmatic implications of value-based living at the four levels? Briefly explain. 6M
- b) Human values are universal and naturally acceptable; hence these are to be explored and realized, not to enforced" - comment. 6M

(OR)

10. a) What do you mean by definitiveness of ethical human conduct? How can it be ensured? 6M
- b) What are the reasons of unethical practices in profession today? What is the real solution to the above problems? 6M

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CODE: 18MEE443

SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, May-2022

**INDUSTRIAL HYDRAULICS AND PNEUMATICS
(Mechanical Engineering)**

Time: 3 Hours

Max Marks: 60

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

UNIT-I

1. a) Illustrate the applications of fluid power and hydraulic fluid properties. 6M
b) Identify the various pumping theories. 6M
(OR)
2. a) Summarize the various types of hydraulic actuators. 6M
b) Analyze the mechanics of hydraulic cylinder loadings. 6M

UNIT-II

3. a) Categorize the direction control valves. 6M
b) Construct the circuit diagram of Intensifier. Mention its applications. 6M
(OR)
4. a) Explain the sliding spool type valve with a neat sketch. 6M
b) Identify the various accessories of accumulators with neat sketches. 6M

UNIT-III

5. a) Design the hydraulic clamping circuits in machine tools. 6M
b) Elaborate an injection molding machine circuit. 6M
(OR)
6. a) Invent speed control in one direction-meter-in circuit. 6M
b) Construct a regenerative circuit. 6M

UNIT-IV

7. a) Predict any six pneumatic symbols. 6M
b) Survey the types of air compressors. Elaborate any one of them. 6M
(OR)
8. a) Elaborate a pressure regulator with the help of a neat diagram. 6M
b) Analyze a four way directional control valve. 6M

UNIT-V

9. a) Design a pneumatic system to control air. 6M
b) Explain pneumatic circuits. 6M
(OR)
10. a) Explain speed control circuits. 6M
b) Judge logic valves like AND or OR gates. 6M

**POWER SYSTEM ANALYSIS
(Electrical & Electronics Engineering)****Time: 3 Hours****Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

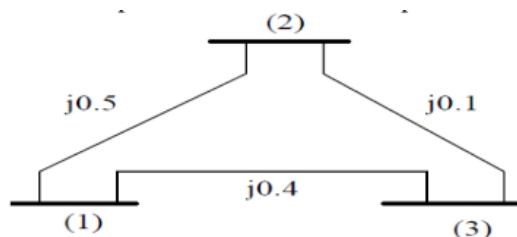
1. a) Mention the advantages of per unit system.
- b) Write down the formula to find YBus by using singular transformation method.
- c) What are the approximations in fast decoupled load flow?
- d) Mention any two advantages of load flow by NR method over GS method.
- e) What is the significance of the bus impedance matrix?
- f) Define symmetrical short circuit current.
- g) Write down the constraints for line – line fault through a fault impedance.
- h) Mention the relative frequency of occurrence of various faults.
- i) Define steady state stability.
- j) What is synchronising power coefficient?

PART-B**Answer one question from each unit****[5x12=60M]****UNIT-I**

2. a) Derive the bus admittance matrix using singular transformation method. 4M
- b) Two generators rated 5MVA, 11KV and 15MVA, 11KV respectively are connected in parallel to a bus. The bus bar feeds two motors rated 6.5MVA and 10MVA respectively. The rated voltage of the motors is 9KV. The reactance of each generator is 12% and that of each motor is 16% on their own ratings. Assume 50MVA, 10KV base and draw the reactance diagram. 8M

(OR)

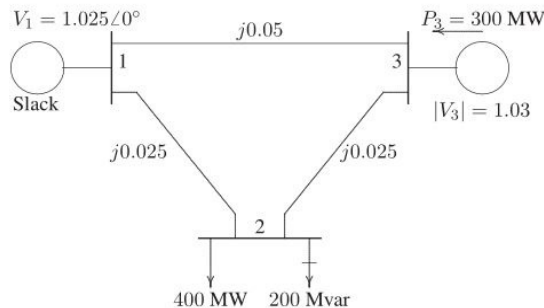
3. a) With the help of single line diagram, explain the different components of a power system. 6M
- b) Form the bus admittance matrix for the network shown. Per unit 6M



impedances are indicated at respective branches.

UNIT-II

4. a) Derive the static load flow equations of a n-bus system. 6M
 b) What is Jacobian matrix? How are its elements computed? 6M
- (OR)**
5. For the system shown below, powers at various buses are specified and the branch impedances in per unit (calculated on a base of 100MVA) are marked for respective branches. Assuming a flat voltage start, find the voltages and bus angles at the three buses at the end of two GS load flow iterations. 12M



UNIT-III

6. a) A 33 kV line has an impedance of $(4 + j16)$ ohm, is connected to a generating station bus bar through a 6 MVA step up transformer which has a reactance of 6%. The station has two generators rated 10 MVA with 10% reactance and 5 MVA with 5% reactance. Calculate the fault current and short circuit MVA when a three phase fault occurs at the HV terminal of the transformer and at the end of the line. 10M
 b) Explain the need of short circuit studies? 2M
- (OR)**
7. With neat sketches and relevant equations, explain the ZBus building algorithm. 12M

UNIT-IV

8. a) A 3-phase, 37.5 MVA, 33kV alternator having $X_1=0.18$ pu, $X_2=0.1$ pu, based on its rating, is connected to a 33kV overhead line having $X_1=6.3\Omega$, $X_2=6.3\Omega$ and $X_0=12.6\Omega$ per phase. The alternator is solidly grounded. A single line to ground fault occurs at the remote end of the line. Calculate the fault current. 8M
 b) Discuss about different types of unsymmetrical faults 4M
- (OR)**
9. a) Derive an expression for the fault current for a double line to ground fault on an unloaded generator and draw its equivalent circuit. 8M
 b) Derive the expression for three phase power in terms of symmetrical components. 4M

UNIT-V

10. a) Derive the expression for critical clearing angle for the case of single machine connected to infinite bus. 6M
 b) Explain various methods to improve the transient stability of power system. 6M
- (OR)**
11. Derive the swing equation of single machine connected to infinite bus and also write the assumptions to derive it. 12M