CODE: 13CE4026 **AR13** **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMUS)
IV B.Tech I Semester Supplementary Examinations, March-2017
Remote Sensing & GIS Applications
(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

Answer all questions **[1 x 10 = 10M]**

1. a) Give example for hierarchical database model
   b) What are the different types of thematic maps?
   c) What is the difference between non-selective and selective scattering
   d) List out the functions of Database Management System
   e) What is MSS?
   f) What is Data Acquisition?
   g) What is Topological model?
   h) What are polar orbiting satellites?
   i) Define wein's displacement Law?
   j) What is buffering?

PART-B

Answer one question from each Unit **[5 x 12=60 M]**

UNIT – 1

2. a) Explain energy interaction with the earth surface? (6M)
   b) What is scattering? Explain about different types of scatterings. (6M)

(OR)

3. a) Differentiate active and passive remote sensing systems (6M)
   b) Explain the necessity and importance of remote sensing. (6M)

UNIT – II

4. a) What are the different types of remote sensing platforms and sensors? (6M)
   b) What are the characteristics of an image? (6M)

(OR)

5. a) Briefly explain about different types of satellites used in Remote Sensing. (6M)
   b) What are the different digital image data formats and explain? (6M)

UNIT – III

6. What is visual interpretation? What are the basic elements to be considered during visual interpretation of satellite images? (12M)

(OR)

7. Explain about work flow of digital image processing? (12M)

UNIT – IV

8. a) Explain about spaghetti data model with the help of a neat sketch. (6M)
   b) Differentiate between raster and vector Data models? (6M)

(OR)

9. a) Define map projection? Explain commonly used map projections? (6M)
   b) Define maps and explain the types of maps. (6M)

UNIT – V

10. Explain various methods of Geospatial data analysis? (12M)

(OR)

11. Explain about applications of GIS in Flood Delineation Mapping? (12M)

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AR13

CODE: 13EE4024 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, March-2017
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a . Draw the typical input-output curve of a generator unit
   b . Define 'Incremental Production Cost' of a generating station
   c . Mention any two constraints on unit commitment problem
   d . Define Hydro thermal scheduling problem
   e . Mention the objective of automatic generation control in a power system
   f. What is the condition for optimum economics distribution of load between the units?
   g. What is tie-line?
   h. If the two areas are identical. What is the relation between two tie-line powers?
   i. List the different FACT controllers.
   j .What are the limitations of series compensation?

PART-B

Answer one question from each unit **[5 x 12=60M]**

UNIT-I

2.(a) Derive the condition for economical load dispatch among various generating plants. Also explain with flow chart for the solution of economical load dispatch problem by λ-iteration method [8M]

(b) Determine the operating schedule of 2-generator case of 100MW each whose incremental characteristics are given by

$$\frac{dF1}{dF_2} = 2+0.012P_1 \qquad \frac{dF_2}{dP_2} = 1.5+0.015P_2$$

The minimum load on each unit is 10MW .The total load to be supplied is 150MW [4M]

(OR)

3. Derive the loss coefficients and mention the assumptions made [12M]

UNIT-II

4.(a) Explain the problem of scheduling in hydro thermal power plants. What are the constraints in the problem? [6M]

(b) Explain about Unit commitment problem [6M]

(OR)

5.(a) Derive the coordination equation for the optimal scheduling of hydrothermal interconnected power plants [6M]

(b) Explain the constraints in Unit commitment Problem [6M]

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UNIT-III

6 a) Explain the necessity of maintaining constant frequency in a power system [4M]
b) Derive steady state response of load frequency control of an isolated power system The complete block diagram with feedback loop [8M]

(OR)

7. a) Draw a block diagram, with illustrative transfer function of a single area frequency control system. Explain the function of different components of such a control system [8M]
b) Explain the concept of control area in the Load Frequency control of power system [4M]

UNIT-IV

8. Obtain the block diagram of load frequency control of two area control system [12M]

(OR)

9. Derive an expression for steady state change of frequency and tie-line power transfer of a two area power system [12M]

UNIT-V

10. a) Explain the concept series compensation and shunt compensation [6M]
b) Explain the importance of reactive power and its control in the operation of a power system [6M]

(OR)

11.a) Describe briefly various compensations carried out in power system [6M]
b) What is line compensation? Why it is necessary? [6M]

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AR13

CODE: 13ME4028 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, March-2017

INDUSTRIAL HYDRAULICS & PNEUMATICS
(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is meant by sizing of accumulators?
   b) What is the advantage of using servo systems?
   c) What is a pressure compensated vane pump, and how does it work?
   d) State the significance of shuttle valve?
   e) List out two differences between proportional and servo valves?
   f) What are the advantages of fluidic elements?
   g) Explain PLC applications in fluid power?
   h) What is the function of Accumulators?
   i) List out Hydraulic symbols?
   j) List out Pneumatic symbols?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain the construction and working of an external gear pump. [7M]
   b) A vane pump is to have volumetric displacement of 82 cm. it has a rotor diameter of 5cm, a cam ring diameter of 7.5 cm and a vane width of 4cm. what must be the eccentricity? [5M]

(OR)

3. a) What do you mean by manometric efficiency, mechanical efficiency and overall efficiency of centrifugal pump? [8M]
   b) State five disadvantages of using air instead of hydraulic oil in a fluid power system? [4M]

UNIT-II

4. a) Explain about Flow control valves and their classification with neat sketches? [6M]
   b) Briefly Explain about positive displacement pumps with neat sketches? [6M]

(OR)

5. a) Differentiate between positive displacement and non-positive Displacement pumps? [6M]
   b) Briefly explain In line check valve with neat sketches? [6M]

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UNIT-III

6. Explain with the help of hydraulic circuit diagram operation of meter-in and meter-out circuit [12M]

(OR)

7. a) Briefly Explain about Clamping circuits with neat sketches? [6M]
   b) Briefly Explain about standard manifold for dual speed? [6M]

UNIT-IV

8. a) List out the advantages of using pneumatic system. [4M]
   b) Describe the working principle along with graphic symbols of the following i) Sequence Valve ii) Counter balance valve. [8M]

(OR)

9. a) Draw and explain a pneumatic safety circuit for protection against over load? [6M]
   b) Draw and explain a pneumatic safety circuit for protection against pressure drop? [6M]

UNIT-V

10. a) Explain about control of single acting cylinder using pilot control valve and shuttle valve with neat sketches? [6M]
    b) Explain about control of single acting and double acting cylinder with neat sketches? [6M]

(OR)

11. a) Explain the application of time delay valves in detail? [4M]
    b) Explain with a neat circuit diagram the method followed to control the speed of position in hydraulic cylinder? [8M]

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CODE: 13EC4029 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

MICROWAVE ENGINEERING

(Electronics & Communication Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is the dominant mode of TM waves in rectangular waveguides?
   b) Write the expression for group velocity in rectangular wave guide.
   c) Write the applications of magic tee.
   d) Draw the circuit diagram of 3-port circulator.
   e) What is beam loading?
   f) Write the expression for beam- coupling coefficient in 2-cavity klystron amplifier.
   g) Write the difference between TWT and Backward wave oscillator.
   h) Define slow wave structure.
   i) What are the modes present in gunn diode.
   j) What are the methods of impedance measurement techniques?

PART-B

Answer one question from each unit **[5 x 12=60M]**

UNIT-I

2. (a) Explain rectangular cavity resonator. 8M
   (b) A hollow rectangular waveguide has dimensions a=1.5 cm & b=1cm, calculate the amount of attenuation if the frequency of the signal is 6GHz. 4 M

(OR)

3. (a) Sketch the field patterns for dominant modes in a rectangular wave guides? 8 M
   (b) What are the various applications of microwave frequencies? 4 M

UNIT-II

4. (a) With help of neat sketches describe any two microwave components which make use of faraday rotation principle. 6 M
   (b) A signal of power 32mW is fed into one of the collinear ports of a lossless H-plane tee. Determine the powers in the remaining ports when other ports are terminated by means of matched loads. 6 M

(OR)

5. (a) Describe in detail the operation of a 2-hole directional coupler, Calculate the coupling factor if the power in the primary waveguide is 72mw and the power delivered to the directional coupler is 8mw. 6 M
   (b) Draw and explain magic tee with s-matrix and also write the applications. 6 M

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UNIT-III

6. Explain in detail about a two- cavity klystron, velocity modulation, bunching process, output power and beam loadings. 12 M

(OR)

7. A reflex klystron operates at the peak of n= 1¾ mode. The dc power input is 40mW and ratio of v_1 over v_0 is 0.278. 12 M
   i) Determine the efficiency of reflex klystron
   ii) Find the total power output in mW
   iii) If 20% of the power delivered by the electron beam is dissipated in the cavity walls find the power delivered to the load.

UNIT-IV

8. (a) What are cross field devices? How does a magnetron sustain its oscillations using this cross field? Assume π- for explaining the same. 8 M

   (b) A helical TWT has diameter of 2mm with 50 turns per cm. 4 M

   (i) Calculate axial phase velocity

   (ii) The anode voltage at which the TWT can be operated for useful gain.

(OR)

9. (a) What are slow structures? Explain how a helical TWT achieves amplification. 8 M
   (b) A normal cylindrical magnetron has the following parameters: 4 M
   Inner radius R_a=0.15 meter, Outer radius R_b=0.45 meter,
   magnetic flux density B_0=1.2 milli webers/m^2
   (i) Determine the hull cut-off voltage
   (ii) Cyclotron angular frequency in GH_z.
   (iii) Cut-off magnetic flux density if the beam voltage $V_0$is 6000V.

UNIT-V

10. (a) Draw and explain in detail about TRAPATT diode. 8 M
    (b) Explain about the following by using microwave bench set-up 4 M
    (i)Impedance measurement (ii) Attenuation measurement.

(OR)

11. (a) Define negative differential resistivity. Explain the J-E characteristics of Gunn diode. 8 M
    (b) Explain power measurement by using microwave bench setup. 4 M

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CODE: 13CS4022 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, March-2017

OPEN SOURCE SOFTWARE
(Computer Science & Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is open source movement?
   b) What is kernel mode in linux?
   c) What is MySQL?
   d) What are the advantages of MySQL in comparison to Oracle?
   e) What are the common usage of PHP?
   f) How will you get environment variables in PHP?
   g) What are the supported data types in Python?
   h) What is the output of print str + "TEST" if str = 'Hello World!'?
   i) What are the features of Perl programming?
   j) What is variable context in perl?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. (a) Compare and Contrast Open Source Software Vs Proprietary Software. 6M
   (b) Explain about history of Linux in detail. 6M

(OR)

3. (a) Describe about signals in LINUX. 6M
   (b) What is a process? Describe about managing processes in LINUX. 6M

UNIT-II

4. (a) Write in detail about record selection technology. 6M
   (b) How do you create an account to use for connecting to the MySQL server running on a given host, create a database and to set up tables within it? Explain. 6M

(OR)

5. (a) Describe about working with Date and Time with MySQL. 6M
   (b) Explain about the MySQL and Web. 6M

UNIT-III

6. (a) Explain the types of Arrays in PHP with examples. 6M
   (b) Explain various program control statements in PHP with suitable examples. 6M

(OR)

7. (a) What are the data types available in PHP? 6M
   (b) How do you implement inheritance in PHP? Explain with examples. 6M

UNIT-IV

8. (a) How to create, assign tuples and access values in tuples. 6M
   (b) Describe in detail about multiple inheritance in Python. 6M

(OR)

9. (a) Which Python types are immutable? Which Python types are sequences? 6M
   (b) Discuss in detail about lists compound data types in Python with examples. 6M

UNIT-V

10. (a) What are the control structures in PERL? Give the syntax of each. 6M
    (b) Discuss about opening a file and closing a file in PERL. 6M

(OR)

11. (a) Describe about packages and modules in PERL. 6M
    (b) Describe in detail about Regular expression support functions in PERL. 6M