AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B. Tech I Semester Supplementary Examinations, January-2018

REMOTE SENSING AND GIS APPLICATION
(Civil Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

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

1. a) Define dispersion?
    b) Define spectral reflectance curve?
    c) Define wavelength and crest?
    d) List out input data sources in GIS?
    e) Define atmospheric windows?
    f) Define raster data and list out raster data models?
    g) Define sun glint?
    h) Expand DEM?
    i) Define spatial resolution and write down the formulae for spatial resolution?
    j) Define GIS?

PART-B

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

UNIT-I

2. a) Define Remote sensing. Write down the applications of remote sensing in various   6M
       fields?
    b) Explain about the elements of remote sensing with neat sketch?   6M

(OR)

3. a) Explain briefly about Electromagnetic spectrum with neat sketch?   6M
    b) Explain briefly about energy interactions with atmosphere?   6M

UNIT-II

4. a) Explain about different digital image data formats?   6M
    b) Define resolution. Explain about types of resolution?   6M

(OR)

5. List out various types of Remote sensing. Explain in detail about classification based on   12M
    platforms and energy sources with neat sketch?

UNIT-III

6. a) Define visual interpretation. Explain about elements of visual interpretation?   6M
    b) Explain about digital image processing?   6M

(OR)

7. a) Explain briefly about supervised classification   6M
    b) Explain about unsupervised classification?   6M

UNIT-IV

8. Explain briefly about raster and vector data?   12M

(OR)

9. a) Explain briefly about the components of GIS with neat sketch?   6M
    b) Explain briefly about spatial data input methods?   6M

UNIT-V

10. Define spatial data. Explain types of overlay operations in GIS with neat sketch?   12M

(OR)

11. a) Explain the importance of remote sensing and GIS in present day studies?   6M
    b) Explain briefly about remote sensing and GIS applications in land use/land cover,   6M
       agriculture and flood zone delineation

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CODE: 13EE4024   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B. Tech I Semester Supplementary Examinations, January-2018

POWERSYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

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

PART-A

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

1.
   a) Unit of heat rate cure is
   b) What is meant by unit commitment
   c) What is a penalty factor in economic scheduling
   d) What are base load plants?
   e) State why P-F and Q-V control loops can be treated as non-interactive
   f) What is the necessity of maintaining a constant frequency in power system operation.
   g) ACE equation for a general power system with tie line bias control is
   h) What is meant by tie-line bias control
   i) Explain briefly about load compensation?
   j) What are the different methods of voltage control

PART-B

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

UNIT-I

2.	a	Derive the condition for optimal allocation of load between thermal units when transmission losses neglected.	**8M**
	b	Define the incremental fuel and production costs	**4M**

(OR)

3.	The fuel cost spent per hour of plant 1 and 2are given as	**12M**

$$C_1 = 0.2P_1^2 + 40P_1 + 120 \text{ Rupees/hour}$$

$$C_2 = 0.25P_2^2 + 30P_2 + 150 \text{ Rupees/hour}$$

Determine the economic operating schedule and the corresponding cost of generation if the max and min loading of each unit is 100MW and 25MW, the demand is 180MW and the transmission loss neglected. If the load is equally shared by both the units, determine the saving obtained by loading the units as per equal incremental production cost.

UNIT-II

4.	Describe different methods for solving hydro thermal optimal scheduling.	**12M**

(OR)

5.	a	What do you mean by unit commitment problem and discuss various constraints related to UCP.	**6M**
	b	Discuss in detail, the dynamic programming approach for the solution of UCP	**6M**

UNIT-III

6.	With a neat diagram, explain briefly different parts of a turbine speed governing system	**12M**

(OR)

7.	With a neat block diagram, explain the load frequency control in an isolated power system	**12M**

UNIT-IV

8.	Explain clearly about proportional plus integral load frequency control with a block diagram and also prove that the steady state change in frequency deviation is zero	**12 M**

(OR)

9.	Explain about the two-area Load Frequency Control with tie-line power control.	**12M**

UNIT-V

10.	a	Explain briefly about shunt and series compensation of transmission lines	**8M**
	b	What are the benefits of FACTS	**4M**

(OR)

11.	Discuss in detail about the generation and absorption of reactive power in power system components	**12M**

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CODE: 13ME4028   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B. Tech I Semester Supplementary Examinations, January-2018

INDUSTRIAL HYDRAULICS & PNEUMATICS
(Mechanical Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. Explain the following briefly
    a) Hydraulic symbols
    b) Hydraulic actuators
    c) Pressure control valves
    d) Applications of accumulators
    e) Clamping circuits
    f) Plastic injection molding circuit
    g) Types of compressors
    h) PLC applications
    i) Basic pneumatic circuits
    j) Pressure sequence valve

PART-B

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

UNIT-I

2. a) What are the factors to be considered for the selection of a hydraulic pump? Explain in detail.   6 M
    b) A vane pump is to have volumetric displacement of 82 cm^3. it has rotor displacement of 5 cm. A cam ring diameter of 7.5 cm and a vane width of 4 cm. What must be the eccentricity.   6 M

(OR)

3. a) Explain the construction and working of a external gear pump   6 M
    b) Explain with a neat sketch the vane motor   6 M

UNIT-II

4. a) Classify hydraulic control valves. Explain with a neat sketch the working of a check valve and give its graphical representation   6 M
    b) Draw symbolic representations of the following valves.   6 M
        1. Pressure reducing valve   2. Counter balance valve

(OR)

5. Classify the different accumulators used in hydraulic system and explain the spring loaded hydraulic accumulator.   12 M

UNIT-III

6. Explain with neat sketches the meter-in and meter-out circuits   12 M

(OR)

7. Sketch and explain the Hydraulic press circuit   12 M

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UNIT-IV

8. a) What are the advantages of using Pneumatic system?   6 M
   b) Write a note on the direct and indirect actuation of pneumatic cylinders.   6 M

(OR)

9. Explain the construction and working principle of the Pilot operated solenoid   12 M
   operator

UNIT-V

10. a) Sketch and explain the non receiving type pressure regulator   6 M
    b) Discuss the speed control circuits used in the hydraulic system with suitable   6 M
       sketches

(OR)

11. Explain the following in detail   12 M
    i. Pneumatic circuit analysis   ii. Pneumatic vacuum systems

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B. Tech I Semester Supplementary Examinations, January-2018
MICROWAVE ENGINEERING
(Electronics & Communication Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL THE QUESTIONS   **[10X1=10M]**

1   a) Define dominant and degenerate modes.
      b) What is the phase velocity and group velocity in a rectangular waveguide if $f > f_c$
      c) What is the purpose of slow wave structure in TWT?
      d) What is the importance of reentrant cavities in microwave tubes?
      e) What is phase focusing effect?
      f) Draw the equivalent circuit of Magic TEE?
      g) A Directional Coupler having Coupling Factor of 20dB and Directivity of 40dB. If the
         incident power is 250 mWatts, what is the coupled power?
      h) List the differences between Avalanche Transit Time devices and Transfer
         Electron Devices
      i) Define attenuation and VSWR?
      j) Two identical directional couplers are used to sample the incident and reflected powers.
         The output of two couplers is found to be 4.0 mW and 0.15 mW. Find the value of
         VSWR in the waveguide?

PART-B

Answer one question from each unit   **[5X12=60M]**

UNIT-I

2   a) Explain why the guide wavelength in a rectangular waveguide is greater than the
         free-space wavelength?   **5M**
      b) An air filled rectangular waveguide has the dimensions of a=8cm, b=5cm. The signal
         frequency is 2.5 GHz. Determine the cut-off frequency, Guide wavelength, Phase
         constant and wave Impedance for TE_{11} mode.   **7M**

(OR)

3   a) Derive the relation between operating wavelength, cut-off wavelength and guide
         wavelength in a rectangular waveguide.   **4M**
      b) An X band Rectangular waveguide made of brass ($\sigma = 1X10^7$ mhos/m) is excited at 10
         GHz in dominant mode If the guide is filled with Teflon ($\epsilon r = 2.2$ and tan $\delta = 0.0005$)
         calculate the attenuation constant due to dielectric loss.   **8M**

UINT-II

4   a) Explain the operation of a Faraday rotation isolator with a neat sketch?   **7M**
      b) Explain the operation of Gyrator with neat sketch.   **5M**

(OR)

5   a) Show that it is impossible to construct a perfectly matched, loss less reciprocal three port junction.   **4M**

b) Determine the scattering parameters of a 10dB directional coupler. The directivity is 30dB, Assume that it is lossless and the VSWR at each port is 1.0 under the matched condition. Designate the ports in the main waveguide as 1 or 2 and the ports in the auxiliary guide as 3 and 4.   **8M**

UNIT-III

6   a) Explain how velocity and current modulations takes place in a Reflex Klystron Oscillator? Using Applegate diagram show how bunching occurs under favorable conditions?   **6M**

b) Explain the operation of Reflex klystron oscillator; obtain an expression for power output and efficiency?   **6M**

(OR)

7   a) A Reflex Klystron is to be operated at a frequency of 8 GHz, with a DC beam Voltage of 400 V Repeller spacing of 0.1 cm for 1 ¾ mode. Determine the maximum value of power and corresponding repeller voltage for beam current of 30mA.   **6M**

b) A Reflex Klystron uses an accelerating voltage of 300 V and operating at frequency of 2 GHz. Power output maxima are found to occur at repeller voltage of -8Volts, Identify the transit time of observed mode?   **6M**

UNIT-IV

8.   a) Draw the schematic diagram of a helix Travelling Wave Tube Amplifier and explain the amplification process?   **9M**

b) Explain how a π mode separated from other modes from other modes in cavity magnetron?   **3M**

(OR)

9.   a) Explain the π- mode oscillations of a cavity magnetron?   **7M**

b) A O-type TWT is operating at 2GHz. The slow wave structure has the pitch angle of 4^0 and attenuation constant of 2Np/m. determine the propagation constant of the travelling wave in the tube?   **5M**

UNIT-V

10.   a) Explain the operation of TRAPATT diode?   **6M**

b) Explain the different possible modes of GUNN diode oscillator?   **6M**

(OR)

11   a) A 25dB isolator is added in series at the output of a signal generator to reduce the possibility of frequency pulling due to an effected system VSWR of 1.60/1.0. If the generator power output is 245mW, what is the value of reflected signal received at the generator?   **7M**

b) A TRAPATT diode has the following specifications   **5M**
   Doping Concentration   : $2.0X10^{16}$/cm^3
   Current Density: 30kA/cm3. Calculate the avalanche zone velocity.

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B. Tech I Semester Supplementary Examinations, January-2018
OPEN SOURCE SOFTWARE
(Computer Science & Engineering)

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

PART-A

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

1.
   a) Differentiate kernel mode and user mode.
   b) Define cloning.
   c) Write MySQL command to display the table structure and empty the table.
   d) What is metadata?
   e) Write the syntax to define a constant in PHP.
   f) Define template in PHP.
   g) List the types of errors in PYTHON.
   h) Write the syntax to define a function in PYTHON.
   i) Define literal in Perl.
   j) Write the syntax to define package in Perl.

PART-B

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

UNIT-I

2.	a	Explain the process management in Linux with suitable system call.	6M
	b	Discuss in detail the advantages of open source.	6M

(OR)

3.	a	Write a short note on development with Linux.	6M
	b	Explain in detail signals.	6M

UNIT-II

4.	a	Write MySQL query for the following using DATE and TIME	6M

        i) Display current date and time. Ii) Display time in HH:MM:SS format.
        iii) Display the date "one year ago" from today's date.

	b	Describe MySQL string function with its syntax and an example.	6M

(OR)

5.	a	Explain about generating summary in MySQL.	6M
	b	Explain record selection technology in MySQL.	6M

UNIT-III

6.	a	Define operator associativity in PHP. Evaluate the following expression	6M

        i) (2+4)/2*3   ii) 2+4/2*3   iii) (2+4)/(2*3)

	b	Write the short note on PHP shorthand assignment operator.	6M

(OR)

7.	a	Illustrate string manipulation and regular expression in PHP with suitable example	6M
	b	Write a short note on debugging and error handling in PHP	6M

UNIT-IV

8.	a	Illustrate the internal structure of a typical Python module with example.	6M
	b	Explain how dictionaries are compared in Python.	6M

(OR)

9.	a	Formulate with an example program to find out all the values in the list that are greater than the specified number.	6M
	b	Write short note on Arrays in Python with example.	6M

UNIT-V

10.	a	Illustrate some of the elements and components with in Perl.	6M
	b	Discuss in detail the execution process of Perl script.	6M

(OR)

11.	a	Explain about parsing rules of Perl.	6M
	b	Write a short note on control structures of Perl.	6M

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