Code No.: **30127** MR13

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Maisammaguda, Dhulapally,(Post Via kompally), Secunderabad-500 100.

IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL - 2017

SUBJECT: **REMOTE SENSING AND GIS**

(BRANCH: **CE**)

Time: **3 Hours** Max Marks:75

PART-A

I. Answer all the questions **5 x1=5M**

1. How many fiducial marks will be in an satellite image?
2. Define Electromagnetic spectrum.
3. Define Tool-base definition of a GIS.
4. What is full form of DSM ?
5. Expand LULC.

II Answer all the questions **10 x 2=20M**

1. Write about Atmospheric Windows.
2. What is ortho rectification of image?
3. Write brief notes on Basic elements of Remote Sensing
4. What is digital representation of image?
5. What are the types of GIS?
6. Write brief notes on Layer based GIS
7. Explain network data model in brief.
8. Write brief notes on Attribute data storage.
9. Explain briefly significance of Remote sensing during a cyclone.
10. Write four attributes in estimation of losses due to drought in a drought hit region.

PART-B

Answer all the questions **5 x 10=50M**

1. Describe the stereoscopy and height measurement.

(OR)

2. Explain about
   (i) Ground Control Points (5)
   (ii) Stereoscopy system (5)

3. Explain the atmospheric windows in EMR and Black body radiation.

(OR)

4. Explain briefly about landmarks IRS satellite history.

5. Explain how data is captured, inputted and edited in vector GIS.

(OR)

6. Write an account of Data flow in satellite system with neat sketches.

7. (a) Explain in detail how cartographic modeling is useful in selecting waste water disposal site. (5)

(b) What are computational analysis methods? (5)

(OR)

8. (a) What is data storage? Explain vector data storage and attribute data storage. (5)

(b) Explain the integration of Spatial and Attribute data. (5)

9. Write an account on:
   a. Fluvial Geomorphology
   b. Reservoir sedimentation

(OR)

10. (a) Write about water quality survey and management. (5)

(b) Write about reservoir sedimentation. (5)

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IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL - 2017

SUBJECT: **Transportation Engineering-II**

(BRANCH: **CE**)

Time: **3 Hours** Max Marks: 75 Marks

PART-A

I. Answer all the questions **5 x 1 = 5 Marks**

1. Define the term sleeper density.
2. What is maximum cant allowed on Indian railways?
3. What is meant by Airport Reference Temperature?
4. Explain about cargo port.
5. Explain briefly about a AVI.

II. Answer all the questions **10 x 2 = 20 Marks**

1. What is meant by creep of rails?
2. Define the term gauge in a railway track. What are various gauges adopted by Indian Railways?
3. What is the necessity of points and crossings?
4. A BG railway track is designed for ruling gradient of 1 in 180 on a curve of 3^0. What should be the compensated gradient in the alignment?
5. Classify the airports based on FAA.
6. State the components of a runway.
7. Elaborate the concept of commercial ports?
8. Differentiate between port and harbor.
9. What are the benefits of ITS?
10. What are Intelligent Transport Systems?

PART-B

Answer all the questions **5 x 10 = 50 Marks**

1. a) What are the different types of sleepers used in the track on Indian Railways? Write down in brief the advantages and disadvantages of each type. (5)
   b) What are the possible causes of creep? What are the effects of creep? Explain theories related to creep. (5)

(OR)

2. a) What is meant by ageing of sleepers? State how it is maintained in the various types of sleepers. (5)
   b) What are the functions of sleepers? (5)

3. a) Explain the Left Hand turnout in detail. (7)
   b) Derive an expression for determination of cant on railway track. (3)

(OR)

4. a) Explain about negative super elevation and the situation where it is required in a railway track. (5)
   b) Write in detail about types of gradients. (5)

5. a) Explain briefly the various runway geometrics as recommended by ICAO. (5)
   b) Define Taxiway. Explain the factors to be considered in the design of an exit taxiway? (5)

(OR)

6. a) Enumerate the factors affecting site selection for an airport. Explain about them in detail. (7)
   b) Explain in detail about the factors controlling Taxiway layout. (3)

7. a) Explain in detail about construction of break waters? (5)
   b) Write a short note on short range navigational aids. (5)

(OR)

8. a) What are the requirements of a good port design? (5)
   b) Explain about various features of harbour. (5)

9. Explain in detail about ITS implementation in developed countries with a case study. (10)

(OR)

10. Write Overview of ITS implementations in developed countries. (10)

Code No.: 30130 MR13

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IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL – 2017

SUBJECT: **WATER RESOURCES ENGINEERING-II**

(BRANCH: **CE**)

Time: **3 Hours** Max Marks:**75**

PART-A

I. Answer all the questions **5 x1=5M**

1. Define life of a reservoir.
2. What factors governing site selection for a dam?
3. Define phreatic line.
4. What is a Cistern?
5. Describe "Cross-Drainage works" and name the different types of cross drainage works.

II Answer all the questions **10 x 2=20M**

1. Explain Mass inflow curve.
2. How do you estimate the probable life of a reservoir?
3. Draw the elementary profile of a gravity dam.
4. Distinguish clearly between rigid and non-rigid dams.
5. Explain the necessity of slope protection in earthen dams.
6. Draw a typical section of an earthen dam and identify all its important components.
7. Enumerate different types of canal falls.
8. What are the functions of Silt Ejector?
9. Explain briefly about launching apron.
10. Draw the diagram of aqueduct.

PART-B

Answer all the questions **5 x 10=50M**

1. (a) What are the different types of reservoirs? Explain the various purposes of different types of reservoirs. (5)
   (b) What are the various causes of reservoir sedimentation? How would you reduce the rate of sedimentation? (5)

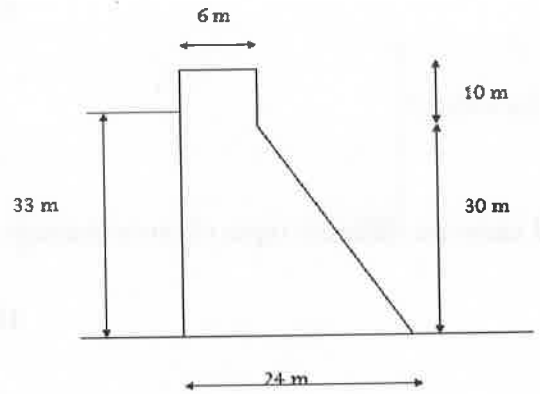
(OR)

2. (a) What is a mass curve? How will you determine storage capacity for the reservoir from the mass curve? (6)
   (b) Write the investigations that you will conduct for reservoir and dam site. (4)

3. (a) What is meant by gravity dam? What are the main points to be considered while selecting a site for a gravity dam construction (6)
(b) Write the importance of Inspection and drainage galleries (4)

(OR)

4. For a gravity dam with the following section, the depth of water stored in the reservoir is 33 m. The tail-water depth is zero. Consider only weight, water pressure and uplift pressure. Analyze the dam section to determine the factor of safety against overturning and sliding. Assume coefficient of friction between the base and foundation as 0.7, uplift pressure intensity coefficient as 0.45, and weight of concrete to be 24 kN/m^3.



5. (a) Discuss the reasons for structural failures of earthen dams with the help of neat sketches.
(b) Explain the component parts and functions of a rockfill dam.

(OR)

6. (a) Explain the method of plotting phreatic line for an earth dam with horizontal filter at d/s (5)
(b) Explain the design criteria for earth dams (5)

7. (a) What are the functions of diversion head works? (5)
(b) What are the functions of canal head regulator? Discuss the general design consideration for head regulator? (5)

(OR)

8. Write a note with neat sketch a). Divide wall b) Fish ladder c) Under sluice d) Silt exduler (2+2+3+3)

9. Differentiate between Syphon aqueduct and canal siphon.

(OR)

10. Distinguish between (i) Aqueduct and syphon –aqueduct (ii) Level Crossing and an Inlet with neat diagrams.

Code No.: 30129

MR13

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IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL – 2017

SUBJECT: **ESTIMATING & COSTING**

(BRANCH: CE)

Time: **3 Hours** Max Marks: 75

PART-A

I. Answer all the questions **5 x1=5M**

1. Define estimation.
2. State the methods of detailed estimate of RCC building
3. What is meant by banking?
4. What is the importance of Rate analysis?
5. Define valuation.

II Answer all the questions **10 x 2=20M**

1. Write the tabular form for preparation of an abstract estimate.
2. Write the proforma of the abstract estimate
3. Write a short note on long wall short wall method.
4. Calculate the total length of a steel bar having clear span 10m and dia of bar is 8mm. With two sides hook and one side crancked.
5. Write short note on average cross sectional area method of calculating quantity of earth work.
6. The details of road PQ of length 1 Km are given below:
   i. Depth of embankment at P= 1m
   ii. Depth of embankment at Q= 2m
   iii. Side slopes of a road = 1:1
   iv. Width if road at top= 9m

   Calculate the volume of earth work by Mean sectional method
7. What are the factors that affect analysis of rates?
8. Find the quantities of different materials required to make 1 m^3 of cement concrete of proportion 1:2:4.
9. Distinguish between Sinking fund and Scrap value.
10. What are the conditions of a contract?

PART-B

Answer all the questions **5 x 10=50M**

1. What is an Estimate and what is its purpose? **(10M)**

OR

2. Briefly explain the principles of working out quantities for abstract estimate. **(10M)**

3. Explain the difference between long wall-short wall method and center line method. **(10M)**

OR

4. . Estimate the quantity of
   i. Earth work Excavation
   ii. Cement concrete bed
   iii. Masonry in footing using center line method. **(3+3+4M)**

   For the building from the given plan and section having following size:
   The internal dimension of building is 5mX3m
   Wall thickness = 300mm
   Head room height = 4.0m

Cement concrete bed = 1mx0.3m
I footing = 0.7x0.3m
II footing = 0.5x0.3m
Basement = 0.4x0.4m
flooring concrete = 150mm
floor finish CM 1:3 = 25mm
Assume the base of footing is 1.1m below GL.

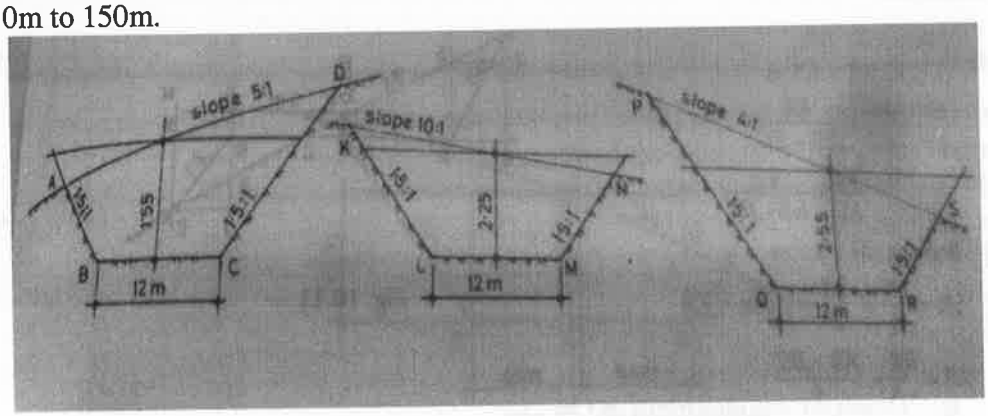
5. Calculate the quantity of Earthwork for the given canal. The width of the canal is 12m.

Distance(m)	0	20	40	60	80	100	120	140
Ground level	113.0	113.8	114.2	115.6	114.6	115.2	114.00	113.41
Formation level	112 |<----------Upward gradient 1 in 50---------->							

For the given canal side slopes are (1:1½) for banking and for cutting (1:1). **(10M)**

OR

6. A hill road is to be constructed in cutting in an area having cross slopes. **Figur-3** shows three cross sections of the proposed road at 110m, 130m, and 150m chainage. Work out the total earth work from chainage 110m to 150m. **(10M)**



7. Prepare analysis of rates for 20 sq.m plastering with cement mortar1:3. **(10M)**
The following rates may be adopted
a) Cement Rs 175/- per 50kg
b) sand Rs40/- per cum
c) Mason Rs 50 /- per day
d) male mazdoor Rs 80/- per day
e) Female mazdoor Rs 35/- per day
f) L.S sundries

OR

8. Prepare analysis of rates for 1st class brick work for super structure with 20×10×10 cm bricks with 1:6 cement sand mortar per 1 cubic meter. **(10M)**
The following rates may be adopted
a) Cement Rs 250/- per 50kg
b) Sand Rs 800/- per cum
c) Brick Rs 20/- per one brick
d) Mason Rs 200 /- per day
e) Male mazdoor Rs 250/- per day
f) Female mazdoor Rs 200/- per day

9. The present cost of a property is Rs 3 lacs on a land purchased at Rs 1.0 lacs. The owner of the property expects a return of 8% on the cost of construction and 7% on the cost of land. The building is estimated to have future life of 60 years at the end of which it returns Rs6.75 lacs. Determine the standard rent of the property for the given data. **(10M)**
a. Rate of interest for sinking fund at 5%
b. Annual repairs at 1% of the cost of construction.
c. All the other out goings is at 30% of the net income of the property.
d. Scrap value at the end of useful life of building at 10% of its present value.

OR

10. Explain in detail the conditions of contract. **(10M)**

Code No.: 301C3

MR13

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IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL – 2017

SUBJECT: **Watershed Management**

(BRANCH: **CE**)

Time: **3 Hours** Max Marks:75

PART-A

I. Answer all the questions **5 x1=5M**

1. Define watershed and write uses of it.
2. How runoff is related to watershed.
3. What are the different types of measures to control soil erosion?
4. What is Water Harvesting?
5. Define crop husbandry?

II Answer all the questions **10 x 2=20M**

1. What is watershed management and objectives of watershed development?
2. Write the basic data required for watersheds.
3. Explain briefly about various methods of computation of runoff?
4. Define recurrence interval and probability.
5. Explain briefly about various types of erosion?
6. How do the estimation of soil loss is calculated due to erosion?
7. Explain the concept of catchment harvesting.
8. Explain land use and land capability classification?
9. What is sustainable agriculture and dry land agriculture?
10. What is ecosystem? Explain its role with respect to watershed?

PART-B

Answer all the questions **5 x 10=50M**

1. Explain in detail about integrated and multidisciplinary approach of watershed management?

(OR)

2. Write a detailed account on integrated watershed management practices in India.
3. a). From the data of annual flood peaks of a catchment the mean and standard deviation are estimated 20000 m^3/sec and 10000 m^3/sec. An exiusting structure on this catchment has been designed for 40000 m^3/sec. Estimate the return period. Assume y_n=0.52 and σ_n=1.06. (5)

   b). Explain the step by step procedure of Gumbell's distribution method. (5)

(OR)

4. Explain about hydrological cycle with adiagram. Explain the process involved in it.

5. Explain in detail various Soil Erosion Control Measures.

(OR)

6. Explain briefly about various Erosion Control Measures?

7. Explain in detail about contour techniques and rock fill dams?

(OR)

8. a).Explain briefly the management of forest, agricultural grassland and wild land. (5)
   b). Explain the uses and applications of check dams. (5)

9. Write in detail about the role of stake holders in watershed management.

(OR)

10. a) Explain about crop pattern (5
    b) Explain the concept of dry land agriculture and horticulture. (5)

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IV B.TECH I SEM SUPPLEMENTARY EXAMINATIONS, APRIL – 2017

SUBJECT: **Industrial Waste Water Treatment**

(BRANCH: **CE**)

Time: **3 Hours** Max Marks:75

PART-A

I. Answer all the questions **5 x1=5M**

1. Write the significance of quality water in textile industry.
2. Define neutralization.
3. Differentiate municipal sewage and industrial wastewater.
4. Define chrome – tanning.
5. Define press mud.

II Answer all the questions **10 x 2=20M**

1. What are the requirements of boiler water?
2. Write any two differences between Boiler and Cooling water treatments?
3. Mention the Wastes which come under Domestic Sewage.
4. Give the names of any four primary neutralizing agents.
5. Mention the tolerable limits of the following industrial effluent parameters to be discharged into inland surface waters, on land for irrigation, public sewers and marine environment
   (a) Oil and grease. (b) Inorganic dissolved solids
6. What is the act which limits the discharge of industrial waste in to oceans?
7. What is manufacturing process? How to design origin of liquid waste from pulp industries?
8. Write down the nature of wastes generated from textile industry?
9. What do you mean common effluent treatment plants?
10. Describe the effluent disposal methods of waste water?

PART-B

Answer all the questions **5 x 10=50M**

1. Describe the quality requirements of process of water for textiles?

(OR)

2. Indicate the sources of wastewater from a tanning industry by means of a neat process flow diagram. Mention the typical characteristics of wastewater from each source.

3. What is the necessity of joint treatment of Industrial waste water management? Also explain its advantages.

(OR)

4. Explain the significance of reusing municipal wastewater into industries.

5. Describe the lakes and oceans problems?

(OR)

6. Briefly explain any four effects of discharging raw industrial wastewater into streams.

7. Explain briefly with the help of flow diagram, the treatment of wastewater generated from distillery industry.

(OR)

8. Explain briefly with the help of flow diagram, the treatment of wastewater generated from Textile industry.

9. Briefly describe the different treatment processes available for pharmaceutical effluents.

(OR)

10. Explain the manufacturing process and design origin of liquid waste from sugar mills