Code No.: **40126/30127**

MR14 –Regular & MR13- Supplementary

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

IVB.TECH I SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS, OCTOBER - 2017

SUBJECT: **REMOTE SENSING AND GIS**

(BRANCH: **CE**)

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

PART-A

I. Answer all the questions **5 x1M=5M**

1. What are fiducial marks?
2. Briefly explain thermal remote sensing.
3. Define GIS
4. What is Map overlay in GIS?
5. Define Drainage Morphometric.

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

1. What is overlapping?
2. Write a brief note on Spectroscopy.
3. Write four advantages of GIS.
4. Differentiate Selective and non-selective scattering.
5. What are four essential features of map?
6. Write a brief note on Raster GIS.
7. Explain buffering function in GIS.
8. What type of spatial data raster model is suited?
9. Write about fluvial geomorphology.
10. Write a brief note on Water depth estimation through GIS.

PART-B

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

1. Write about Parallax measurement for height using figures wherever required.

(OR)

2. Explain the elements involved in Remote Sensing with neat sketches

3. Explain in detail about
   (i) Spectral properties of different water bodies
   (ii) Any three techniques used in digital image interpretation

(OR)

4. Describe in detail about Visual Interpretation Techniques used in remote sensing.

5. Explain data compression techniques used in raster data model.

(OR)

6. What is network analysis in GIS? Explain its applications with examples.

7. Write briefly on the integrated analysis of the spatial and attribute data.

(OR)

8. a) Explain in detail overlay and buffering analysis and site examples where they are useful in civil engineering.

   b) What Visual Analysis Methods are used in real time problems?

9. Explain the principles of Land Use and Land Cover analysis.

(OR)

10. Explain the role of GIS in flood and drought management.

Code No: 40128/30129

MR14 – Regular & MR13-Supply

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

IV B.TECH I SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS, OCTOBER- 2017

SUBJECT: **ESTIMATING & COSTING**

(BRANCH: CE)

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

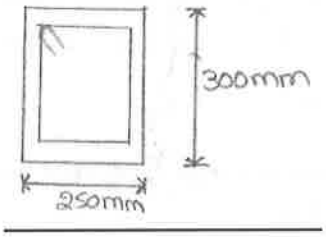
PART-A

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

1. Write the units of measurement for (a) Earth work in surface excavation not exceeding 30cm depth and (b) Rolling shutter.
2. List the different methods of building estimates.
3. List the different methods available for calculation of volumes.
4. Define overhead charges.
5. What is a contract?

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

1. Give the units of measurement for the following items.
   a. Filling the basement with sand.
   b. D.P.C. specified width and thickness.
   c. Rough stone pitching.
   d. Shuttering.
2. Write four general items of work in buildings.
3. Calculate the length of stirrup having 6mm dia with 2-legged. Side and bottom covers are 20mm.



4. If the number of risers = 10, find the number of threads.
5. What is banking and what is cutting? Give one example for each.
6. Draw typical cross section of the road in cutting and derive expression for Volume for 1m length.
7. Define cost at site and cost at source.
8. Find the quantities of different materials required to make 2 m^2 of cement mortar of proportion 1:3.
9. What is meant by Lumpsum contract and Schedule prices contract?
10. What are the objectives of valuation?

PART-B

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

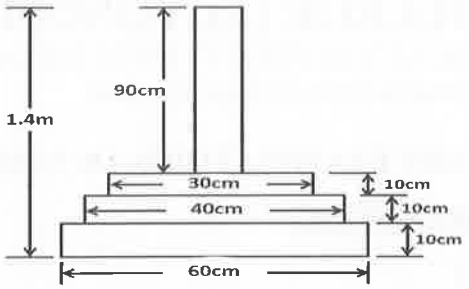
1. Prepare an approximate estimate for the proposed construction of a government building with the following data. (10M)

   Plinth area-100 m^2, cost of construction-Rs 900/-per m^2
   Formation of roads & lawns-1%
   Fluctuation of rates- 4%
   Unforeseen items – 2%
   Contingencies-3%

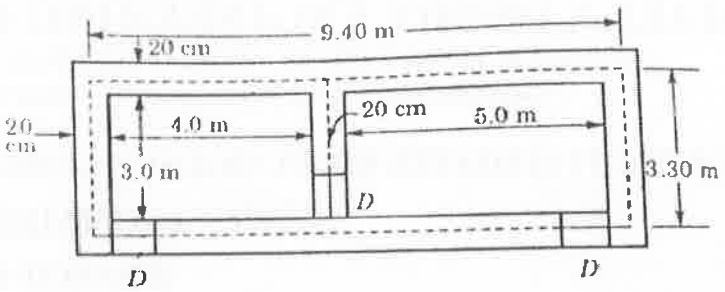
(OR)

2. Explain the methods of approximate estimate in detail. (10M)
3. Calculate the quantities of the following items:
   i. Earthwork (3M)
   ii. Concrete work in foundation (3M)
   iii. Brick work (4M)

From the given plan and section of 20cm thick wall by using long wall short wall method and centerline method. Comment on the quantities.



Elevation



Plan of super structure.

(OR)

4. Explain different methods of building estimate with a illustrative example for each method. (10M)

5. The ground levels at various chainages along the center line of a proposed road are as under: Determine the quantity of earthwork. (10M)

Chainage	11	12	13	14	15
R.L. of ground (m)	280.50	283.36	285.52	287.10	286.50

The ground has uniform cross slope of 1 in 8. The chain length is 30 m long. The road formation is proposed at uniform gradient passing through the ground level at the end chainage with formation width 8 m and side slope of cutting as 1:1.

(OR)

6. Reduced level (R.L) of ground along the centre line of a proposed road from chainage 10 to chainage 20 are given below .The formation level at the 10th chainage is 107 and the road is in downward gradient of 1 in 150 up to the chainage 14 and then the gradient changes to 1 in 100 downward, formation width of road is 10 meter and side slopes for banking are 2:1 (horizontal : vertical) and for cutting 1:2 (H:V) .Length of the chain is 30 meter. (10M)

Chainage	10	11	12	13	14	15	16	17	18	19	20
R.L. of ground	105.00	105.60	105.44	105.90	105.42	104.30	105.00	104.10	104.62	104.00	103.3

7. Prepare rates analysis for the given works. (4+4+3=10M)
   a. R.C.C work in slabs
   b. First class brickwork in super structure with 1:6 cement mortar.
   c. 2.5 cm thick concrete floor(1:2:4)
   Assume any necessary data.

(OR)

8. Prepare analysis of rates for plastering (1:3) and becomes 1.5 cubic meters. (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

9. A building is constructed at a cost of Rs 5 lacs on a land purchased at Rs 1.5 lacs. The owner of the property expects a return of 9% on the cost of construction and 8% on the cost of land. The building is estimated to have future life of 50 years at the end of which it returns Rs10.25 lacs. Determine the standard rent of the property for the given data. (10M)
   a. Rate of interest for sinking fund at 6%
   b. Annual repairs at 1.5% of the cost of construction.
   c. All the other out goings is at 28% of the net income of the property.
   d. Scrap value at the end of useful life of building at 10% of its present value
   Note: Assume any necessary data.

(OR)

10. a) What is the purpose of valuation? List different methods. (5M)
    b) Differentiate between: (5M)
    i. Mortgage value and Scrap value
    ii. Book value and Liquidated value

Code No.: **401D4/301D4**

MR 14 – Regular & MR 13 - Supply

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IV B.Tech I Sem Regular & Supplementary Examinations, NOVEMBER-2017

SUBJECT: **INDUSTRIAL WASTE WATER TREATMENT**

(Branch: **CIVIL**)

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

PART-A

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

1. Define Ramkine Cycle.
2. What is volume reduction?
3. Define eutrophication.
4. What is black liquor?
5. What are the advantages of steel plants in our life?

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

1. Write the application of cooling feed water in industries.
2. What are the requirements of boiler water?
3. Mention the major role of Neutralization process in wastewater management.
4. What is equalization of waste water? Write about their types?
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) Total suspended solids. (b) BOD 5 at 20 ^{0}C
6. What are the uses of municipal waste water?
7. Write down the typical characteristics of dairy industry raw effluent.
8. Differentiate between nitrification and denitrification.
9. What are the special characteristics of waste water?
10. Draw the schematic diagram of Steel Plants process?

PART-B

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

1. Explain the Boiler and Cooling water treatment methods in industries.

(OR)

2. Discuss about Brewery industries?
3. Write the characteristics & treatment process of domestic and industrial waste water.

(OR)

4. Discuss the advantages and consequent problems associated with combined treatment of industrial and domestic sewage.
5. Write about Eutrophication problems in lakes due to Industrial waste water disposal.

(OR)

6. What are the advantages and disadvantages of reusing of waste water?
7. What is the manufacturing process and design origin of liquid waste from textiles and paper?

(OR)

8. Discuss the textile industry wastewater treatment methods.
9. What are the advantages and suitability of waste water of common effluent treatment plants.

(OR)

10. Discuss critically the treatment and disposal of oil refinery wastes and explain the basic refinery operations with the help of a flow diagram.

Code No.: **40129** | MR14

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IVB.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER - 2017

SUBJECT: **WATER RESOURCES ENGINEERING-II**

(BRANCH: **CE**)

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

PART-A

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

1. Define Life of a Reservoir.
2. Write the formula for factor of safety for overturning in gravity dams.
3. List out the various seepage control measures through earthen dam body.
4. What is Khosla's safe exit gradient?
5. Define Launching apron.

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

1. What are the factors governing selection of site for a dam?
2. What is mass inflow curve?
3. What are the factors governing the selection of site for a dam?
4. Explain the functions of drainage gallery.
5. What are the different types of spillways?
6. Mention different types of gates used on spillways.
7. Differentiate between cross regulator and head regulator.
8. Differentiate between silt ejector and silt excluder.
9. Explain Lane's theory.
10. What is the significance of estimation of exit gradient?

PART-B

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

1. (a) What is meant by a 'Reservoir'? Discuss briefly the different types of reservoirs and the purpose served by each type. (5)
   (b) What do you understand by mass curve? Explain the method for determining safe yield from a reservoir of given capacity using mass curves. (5)

(OR)

2. (a) Explain the advantages and disadvantages of Detention and Retarding reservoir. (4)
   (b) The monthly yield of water from a catchment is given below. Determine the Minimum capacity of the reservoir by mass curve method if the flow is drawn at a uniform rate.

   Values are given in million cubic meters: (6)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inflow Volume	1.4	2.1	2.8	8.4	11.9	11.9	7.7	2.8	2.52	2.24	1.96	1.68

3. Explain the procedure of stability analysis of a gravity dam for reservoir full condition and reservoir empty condition.

(OR)

4. What is meant by the elementary profile of a gravity dam? Derive expressions for determining base width of such a dam based on (i) stress criterion, (ii) sliding criterion. Also derive expression for normal, principal and shear stresses at the base of such a dam.

5. (a) What are the various causes of failure of earth dam? Draw the sketches to illustrate the answer. (5)

   (b) A homogeneous earth dam is 43 m high, the free board is 3 m. A 30 m long horizontal filter is provided at the downstream end. The flow net comprised of 5 flow channels and 15 potential drops. If the permeability of the material in the dam is 3×10^{-5} m/s calculate the seepage flow per meter length of earth dam. If the dam is 500 m long calculate total discharge through the body of the dam. (5)

(OR)

6. (a) What is phreatic line? What is its use and how would you locate a phreatic line in earthdam with a horizontal drainage filter. (5)

   (b) Differentiate between tail water rating curve and jump height curve. How would you select the most suitable type of energy dissipating device for different relative positions of the two curves. (5)

7. (a) With a neat sketch mention the components of a diversion head work. (5)

   (b) Discuss in brief about various failures of Impervious foundations (5)

(OR)

8. (a) What are the different types of falls existing and where do you locate it in a canal run. (5)

   (b) Design in detail about cross regulator. (5)

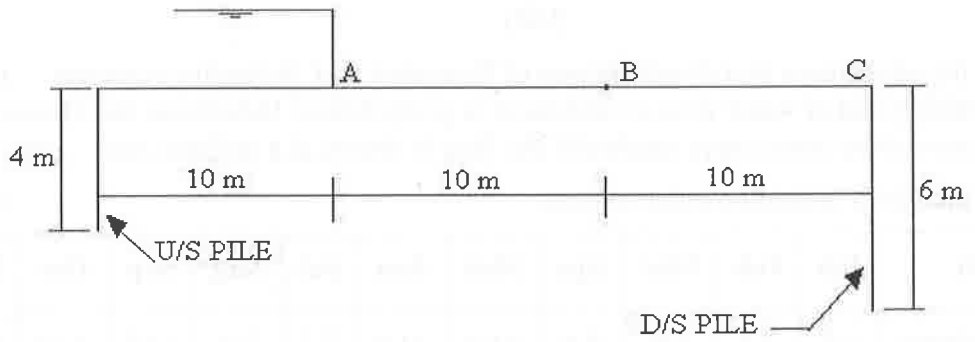
9. (a) What are the various factors which affect the selection of the suitable type of cross-drainage works. (5)

   (b) Explain in detail about super passage with a neat sketch show the components (5)

(OR)

10. (a) What factors will you consider while selecting a suitable type of cross-drainage work? (3)

    (b) The following figure shows a hydraulic structure founded on sand. Determine the average hydraulic gradient. Find uplift pressures at the points A, B and C also determine the thickness of the floor by Bligh's theory. Take G = 2.24 and H = 4 m. (7)



Code No.: **40127**

MR14

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

IV B.TECH I SEMESTER REGULAR END EXAMINATIONS, OCTOBER- 2017

SUBJECT: **Transportation Engineering-II**

(BRANCH: **CE**)

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

PART-A

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

1. Define the term sleeper density.
2. What is grade compensation?
3. Define taxiway.
4. Define Apron in Harbour.
5. Define Intelligent Transport System.

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

1. What are the functions of ballast?
2. What are the functions of rails?
3. Explain the importance of grade compensation.
4. Write in detail about welding of joints.
5. What is the difference between runway and a taxiway?
6. Define crosswind component.
7. Explain about transit sheds.
8. What are the important requirements of harbour?
9. Explain how ITS is used at cooperative level
10. What are Intelligent Transport Systems?

PART-B

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

1. a) Giving a typical cross section of a permanent way on an embankment, indicate various components. Also describe the functions of various components of a permanent way. (6)

   b) Explain the causes of rail failures. (4)

(OR)

2. a) What is meant by ageing of sleepers? State how it is maintained in the various types of sleepers. (6)

   b) Classify RCC sleepers and describe their salient features? (4)

3. a) Explain the types of Rail joints with neat sketches. (5)

b) What is interlocking? Explain the necessity, functions, essential principles and standards followed in interlocking. (5)

(OR)

4. a) Why do we need grade compensation in horizontal curves? State the standard values for BG, MG and NG as recommended by the Indian railways. (5)

b) Discuss the ideal and essential requirements of crossing and turnouts. (5)

5. What do you understand by the term "Basic Runway Length"? Explain the procedure of determining the actual runway length required at a particular site. (10)

(OR)

6. a) Write a note on corrections required to be applied to the basic run way length? (5)

b) Define terminal areas and state the activities that are generally involved in the terminal area?(5)

7. a) Write a note on the classification of harbours. Briefly explain them. (5)

b) Write a note on the harbor planning principles. (5)

(OR)

8. a) Write in detail about aprons, transit sheds and ware houses. (5)

b) Describe the various navigational aids used in guiding ships in harbours and ports. (5)

9. Write a short note on Advanced Traffic Management Systems and Advanced Public Transportation Systems. (10)

(OR)

10. a) Explain the various ITS applications. (5)

b) Write short notes on Automatic Vehicle Identification. (5)

Code No.: **401C4**

MR14

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IVB.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER - 2017

SUBJECT: **AIR POLLUTION AND CONTROL**

(BRANCH: **CE**)

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

PART-A

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

1. List two important pollutants released from automobile
2. Define a wind rose?
3. What is ELR?
4. What are the applications of settling chambers?
5. What is API?

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

1. What are the gases in air pollutants?
2. List the pollutants from cement industry
3. Write the properties of atmosphere, heat, pressure, wind forces and relative humidity in air pollution?
4. Write down the types of Wind roses.
5. Explain what is inversion
6. What is meant by adiabatic lapse rate?
7. List two demerits of gravity settling chamber?
8. Write about design and operation of control in air pollution?
9. What do you understand by air quality standards?
10. Write the importance of air quality in air pollution?

PART-B

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

1. a) Classify air pollutants into different categories, indicating their sources.
   b) Distinguish between primary and secondary pollutants?

OR

2. a) Explain the causes of Green house effect and state the remedial measures for mitigations
   b) Discuss about pollutants form mobile sources
3. a) Explain the control of carbon monoxide for engine emissions.
   b) Explain the method of control of hydrocarbons by condensation method.

OR

4. a) Write about the Thermodynamics of formation of SOx.
   b) Write about the Thermodynamics of combustion.
5. What are the different lapse rates studying in Plume dispersion?

OR

6. Explain about Looping, Lofting and Fumigation with neat sketches.
7. a) What are the different equipments useful in settling chamber process?
   b) What is wet scrubber and the working procedure of it with a neat sketch?

OR

8. Write in detail about Centrifugal separators
9. a) What are the In-plant control measures and Recycling processes? Explain it.
   b) What are the dry methods of removal of Primary and Secondary Pollutants and explain Catox process

OR

10. Write about process changing techniques for lowering atmospheric emissions

Code No.: **401C3**

MR14

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IVB.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER - 2017

SUBJECT: **Watershed Management**

(BRANCH: **CE**)

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

PART-A

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

1. Define vegetation.
2. What is Floor Frequency?
3. Write the equation for universal soil loss?
4. Write the uses of percolation tanks.
5. What is Reservoir Routing?

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

1. Explain briefly about various watershed characteristics?
2. What is watershed management and objectives of watershed development?
3. Draw a diagram for watershed delineation and explain.
4. Explain briefly about various methods of computation of runoff?
5. Explain contour technique for soil erosion?
6. Define Terracing and Gully Control?
7. Explain briefly Rooftop Rain Harvesting?
8. Explain concept of reclamation of soils.
9. Briefly explain about mixed cropping.
10. What are the basic requirements in planning a watershed?

PART-B

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

1. a) What are the basic data and inputs useful in implementing a watershed development plan? (5)
   b) Explain about Hydrological cycle with a diagram. (5)

(OR)

2. Write a detailed account on integrated watershed management practices in India.
3. a). It is a proposed to adopt Gumbell's method for 50 years and 100 years floods with values of 660 m^3/sec and 740 m^3/sec. Estimate the design flood for 200 years for the same. Assume y_n=0.54034 and σ_n=1.12847. (6)
   b). Explain the step by step procedure of Log Pearson type III distribution method. (4)

(OR)

4. Explain the flood frequency analysis by using gum bell method?
5. a) . Discuss the various types of erosion and its effects on land . (5)
   b). Explain in detail the control of erosion with the rock fill dams. (5)

(OR)

6. Explain in detail about the factors affecting erosion?
7. Explain the role of remote sensing for watershed management.

(OR)

8. Explain various rain water harvesting structures with neat sketches and their significance in the field.
9. a) Explain the role of people participation in watershed management
   b) How are action plans prepared to implement a new watershed management plan? (5+5)

(OR)

10. Explain in detail about the following in an ecosystem management? (5+5)
    a) Silvi Pasture b) Afforestation.