Code No.: 72501 | MR17

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

II B.TECH I SEMESTER REGULAR END EXAMINATIONS, DECEMBER-2018

Subject: **Introduction to Mining Engineering**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Difference between drift and crosscut
2. Classify the special methods of shaft sinking and their applicability.
3. What is difference between raise and winze?
4. What is resin capsule bolting?
5. List the applicability of TBM.

PART-B

Answer ALL questions of the following **5x 10 Marks= 50Marks**

1. Explain the importance of size, type and location of shaft of entries in underground coal mining.

OR

2. Explain the methods of geotechnical investigations to be carried out during development and production.

3. Explain the freezing and cementation method of shaft sinking.

OR

4. Explain the sequence in opening up of a deposit in Mining industries.
5. a) Explain drop raising method in detail.
   b) Explain safety lamp in detail.

OR

6. Consider a drive of 3M high and 3M wide with a length of 100M. Assume the man power required for mechanized method of driving a drift and calculate the OMS for the same (Specific gravity of rock is 3.5).
7. Write the short notes.

   (a) W-strap. (b) Wire mesh (c) Gunite/ Shotcrete

   d)Chock/Cog/Cribs/Chock mate. e) Wooden prop.

OR

8. List advantages and limitations of timber support and concrete supports.
9. a) Explain working principle of slurry TBM.
   b) State the applicability's of tunnel boring machines.

OR

10. Explain the construction and working principle of TBM

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

II B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2018

Subject: **Mechanical Technology**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Write the uses of cam and follower.
2. State the factors to be considered while selecting the belt drive.
3. Why gear drives are called as positively driven machine elements.
4. Write the relationship between friction power and brake power.
5. Define compression ratio.

PART-B

Answer ALL questions of the following **5x 10 Marks= 50Marks**

1. a) Define what is Radial Follower and off set Follower.

   b) What is meant by the pressure angle? And give the factors which it will depend on.

OR

2. a) Determine the maximum velocity and acceleration of the follower during its ascent and descent. If the cam rotates at 240 rpm, with SHM
   Take cam lift or stroke as 40mm, out stroke 90^0 and return stroke 60^0 of cam ratation

   b) State the procedure to the profile of a cam when the form of the displacement curve for the follower is known.

3. a) Write short notes about creep and slip of the belt.

   b) Derive an expression for length of an open belt.

OR

4. A shaft rotating at 200 r.p.m. drives another shaft at 300 r.p.m. and transmits 6 kW through a belt. The belt is 100 mm wide and 10 mm thick. The distance between the shafts is 4m. The smaller pulley is 0.5 m in diameter. Calculate the stress in the belt, if it is 1. an open belt drive, and 2. a cross belt drive. Take $\mu = 0.3$.
5. Two mating involute spur gears of 20^0 pressure angle have a gear ratio 2. The number of teeth on pinion is 20 and its speed is 250 rpm. The module pitch of the teeth is 12 mm. If the addendum on each wheel is such that the path of approach and the path of recess on each side are half the maximum possible length each, find:

   i) The addendum for pinion and gear wheel ii. The length of arc of contact

   Assume pinion to be driver.

OR

6. a) Explain the working principle of lathe with a neat diagram.

   b) List the various tool holding device in lathe. Discuss in detail.

7. a) Write the importance of CI engines.

   b) A 4 stroke 4-cylinder petrol engine works on a brake mean effective pressure of 8 bars and engine speed of 1500 r.p.m. Find brake power developed by the engine if the bore is 100mm and stroke 150mm.

OR

8. a) Compare the relative advantages and disadvantages of four stroke and two stroke engines.

   b) Mechanical efficiency of an IC engine is 43% for the brake power 25KW and friction power 15KW, if the brake power is reduced to 60% of its original one then find the mechanical efficiency. Assuming friction power is constant

9. a) With the help of neat sketch, explain the working of vane type compressor. Also show the compression process in P-V diagram

   b) A Vaned compressor handles free air of 0.6 m3/s at 1 bar and compresses to 2.3 bar. There occurs 30% reduction in volume before the back flow occurs. Determine the indicated power required and isentropic efficiency.

OR

10. a) What are different types of rotary compressors and explain briefly the working of any two rotary compressors?

    b) Discuss briefly a 2 stage air compressor with intercooler with neat sketch

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II B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2018

Subject: **MINING GEOLOGY**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. What is volcano?
2. What are Batholiths?
3. What are Master Joints and Minor Joints
4. Define minerals with examples.
5. Formulate dilution in planned and unplanned ore reserves and waste respectively

PART-B

Answer ALL questions of the following **5x 10 Marks= 50Marks**

1. Discuss the various physical and chemical properties of limestone and galena.

OR

2. Define the following terms with examples

   a) Wind actions on rocks b) Types of Land forms

3. What is igneous rock? Discuss the classification of igneous rock.

OR

4. Discuss the texture and structures of metamorphic rock.
5. Write down the different types of fault with neat sketches.

OR

6. Give an account of Geological Time Scale with reference to metallogenic epochs.
7. Discuss the Iron and bauxite deposit of India.

OR

8. Give an account of mineral resources of India with special reference to Telangana?
9. Discuss the various properties of coal and bauxite.

OR

10. a) Define the terms Mineral Resources and Ore Reserves?

    b) Explain in detail formation of ore reserves.

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II B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2018

Subject: **Machine Drawing**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer TWO questions of the following **10x2Mark=20 Marks**

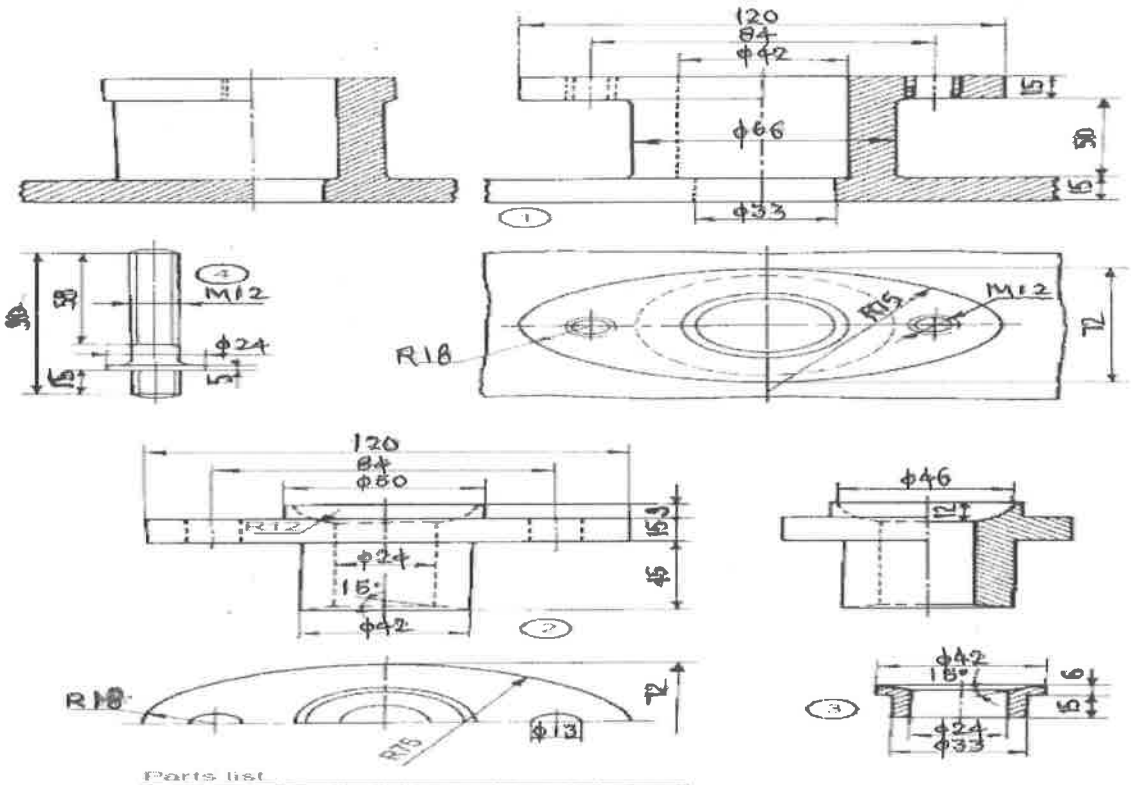
1. Draw the sectional front view and top view of double riveted butt joint with single strap Zig- zag type to join two plates of 20 mm thickness each.
2. Draw the three views of square nut (take nominal diameter 25mm).
3. Draw the half sectional elevation and side view of cotter and sleeve joint used to connect two rods of 50mm diameter.
4. Sketch the following types of keys in two views choose diameter as 30mm and hub diameter of the mounting as 60mm

4. a) Flat saddle key b) Hallow saddle key

PART-B

Answer the following question **1x 40 Marks= 40Marks**

1. Assemble all parts of the stuffing box for a vertical steam engine, shown in the following Figure and draw:
   a) half sectional view from the front, with left half in section,
   b) half sectional view from the right and
   c) view from above. All dimensions are in mm.



Parts list

Part No.	Name	Matl	Qty
1	Body	CI	1
2	Gland	Brass	1
3	Bush	Brass	1
4	Stud	MS	2
5	Nut, M12	MS	2

Figure: Details of stuffing box

Code No.: **70M03** | **MR17**

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II B.TECH I SEMESTER REGULAR END EXAMINATIONS, DECEMBER-2018

Subject: **Environmental Science**

Branch: **Common to CE, ME and MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Define ecological pyramid? Mention the types of ecological pyramids.
2. Define Geothermal energy?
3. What is environmental pollution?
4. What is rating of green building?
5. How the environmental education helps for the sustainable environment?

PART-B

Answer ALL questions of the following **5x 10 Marks= 50Marks**

1. a) What are the biotic and abiotic components of an ecosystem?
   b) What are the functions of ecosystem?

(OR)

2. a) Define environment? Discuss the scope and importance of environmental studies?
   b) Explain the concept of ecosystem.
3. Explain the various values of biodiversity.

(OR)

4. a) Write a short note on Poaching related to biodiversity.
   b) What is the effect of loss of habitat?
5. a) Explain about impacts of modern agriculture on soil.
   b) Write a note on E-waste and its management.

(OR)

6. a) Explain how soil acts as sink for pollutants.
   b) What are the causes and effects of air pollution?
7. What are ozone depleting substances? Explain their impact on ozone layer.

(OR)

8. Write a note on sea level rise.
9. Write short notes on
   a) Environmental ethics b) Conservation of soil resources

(OR)

10. a) What is environmental information system? Give its importance in environment.
    b) What are the reasons behind the increased population growth in the less developed nations compared with developed nations.