

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, JUNE-2018Subject: Mechanical Technology

Branch: MINING

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. Name the types of Hoisting and Hauling chains with sketches.
2. When is the cross belt used instead of open belt?
3. Explain the terms : (i) Pitch point (ii) Pressure angle, and (iii) Addendum in gears
4. Two stroke cycle engine is more suitable for diesel engine when compared with petrol engine. Justify.
5. Draw neat diagram of roots blower with two lobe rotor and give brief explanation about the same.

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. Define the following terms related to cams:
i) Pitch circle ii) Pitch curve iii) Base circle iv) Lift of stroke
2. An open belt drive is transmitting 15KW. The pulleys are of 300mm and 400mm diameters and placed at 1metre apart. The speed of smaller pulley is 700 rpm .Neglecting centrifugal tension, find the tight and slack side tensions of the drives. Assume coefficient of friction as 0.3.
3. a) Discuss the phenomena of interference in gears. Explain the methods of avoiding interference in detail.
b) Write short notes on Operations that can be performed on a lathe machine .
4. a) Write short notes on Two stroke engine.
b) With neat sketches, explain the working principle of 4 stroke spark ignition engine.
5. a) A single cylinder reciprocating compressor has a bore of 120mm and a stroke of 150mm, and driven at a speed of 12200 r.p.m. It is compressing gas from a pressure of 120 kPa and a temperature of 20°C to a temperature of 215°C. Assume polytropic compression with $n=1.3$ no clearance. Calculate
i) Pressure ratio ii) Work done on the compressor. (6M)
b) Differentiate centrifugal compressors from axial flow compressors. (4M)

6. a) Determine the maximum velocity and acceleration of follower having simple harmonic motion with following data

cam rotates at 240 r.p.m

cam lift $S = 40\text{mm}$

Angle of rotation consider 90°

- b) Explain the considerations for selection of the profile of a cam for a particular application.

7. An open belt running over two pulleys 1.5 m and 1 m diameters connects two parallel shafts 4.8 m apart. The initial tension in the belt when stationary is 3000 N. If the smaller pulley is rotating at 600 rpm and coefficient of friction between belt and pulley is 0.3, determine the power transmitted taking centrifugal tension into account. The mass of belt is given as 0.6703 kg/m length.
8. The number of Teeth on each of the two equal spur gears in mesh are 40. The teeth have 20° involute profile and the module is 6mm. If the arc of contact is 1.75 times the circular pitch, find the addendum.

Code No.: 52508

MR15-2015-16 Batch

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: Mining Machinery

Branch: MINING

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. Explain the Combustion of fuel in piston?
2. What are the reasons for re-capping of steel wire ropes at regular interval during its life?
3. Draw a labeled diagram of a mono-cable aerial ropeway bucket and briefly explain its principle of operation
4. What are the principal types conveyors used in mines? what are the applications of those conveyors
5. What are the relative advantages of down-the-hole drilling compared to conventional drilling?

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. Give a classification of mechanical brakes used in rope haulages and winding and compare them. Also explain with the help of neat labeled diagrams their construction and operation. The answers should also include the functions of each of the component of each of these brakes.
2. a) Differentiate direct rope haulage and endless rope haulage
b) Main and tail rope haulage
3. a) Write a note on twin cable rope way.
b) Discuss advantages and disadvantages of aerial ropeways
4. a) Explain the need for tensioning and troughing of belt conveyors. Also state the measures to be taken maintain alignment of the belt in horizontal direction.
b) Construction of Armoured Face Conveyor with reference to longwall mining.
5. Discuss various type of drills used in open cast mines along with their applications.
6. a) What is a Hydraulic power? Describe in detail one Hydraulic Equipment with sketches?
b) Statutory requirements of haulage.
7. a) Run-away of tubs of inclined haulage roadways
b) What are the different types of buckets used in aerial ropeways, Explain ?

8. Answer any TWO Questions of the following

5x2Marks= 10Marks

- a) Construction and operation of Jackhammer drill.
- b) Application of Aerial Ropeway in mine?
- c) Explain Safety appliances in haulage roadways?

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad**II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018**Subject: Fundamentals of GeologyBranch: M I N I N G

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. What are alluvial fans and cones
2. What is magma & lava? Explain.
3. Draw the sketch of a normal fault and label the parts
4. Explain the lithological correlation of formations.
5. What is Hydrological Cycle?

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. Give an overview of the internal structure of the Earth as revealed by Seismological evidences. [10M]
2. a) Write the physical properties of minerals
i) Streak ii) Lustre iii) cleavage iv) Hardness [6M]
b) Describe various textures found by Metamorphic rocks [4M]
3. a) Describe Foliation and Lineation with neat sketches and explain their Engineering considerations [6M]
b) Normal Fault and Reverse fault [4M]
4. a) Explain the stratigraphic succession of Proterozoic basins of India. [5M]
b) Describe the mineral wealth of Archaeans. [5M]
5. a) Write an essay on ground water exploration [6M]
b) Explain the various causes of earthquakes [4M]
6. a) Explain the Internal structure of the Earth with neat sketch. [5M]
b) Explain the mode of development of Landforms developed by Wind. [5M]
7. a) Describe the textures of Igneous rocks with neat sketches. [5M]
b) Write short notes on the following [5M]
i) Granite & Gneiss ii) Limestone & Marble iii) Silicate minerals
8. a) Explain briefly on the following :
i) Columnar joints ii) Sheet joints iii) Mural joints [5M]
b) Describe briefly the Standard Stratigraphical Scale. [5M]

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018Subject: Applied Electrical & Electronics Engineering

Branch: Mining

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. What are the different types of electric motors, give its applications.
2. What is the difference between circuit breaker and protective relay?
3. Define microprocessor? What are the basic units of a microprocessor?
4. What is a 'REP' instruction? Discuss?
5. Write an ALP to subtract two 8-bit number using Immediate addressing mode.

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. a) Give the constructional features of 3- ϕ induction motors. Also explain the phenomenon of torque production with a neat sketch.
b) Explain V/f method for speed control of three phase Induction motor.
2. a) Describe the operation of HRC fuse with its diagram.
b) Draw and explain the operational characteristics of a fuse.
3. a) Draw and explain the characteristics of DC shunt motor and describe their applications in Industries.
b) Explain Electrical oil rigs and IE rules used in Mines and oil fields.
4. a) Draw the architecture of 8085 and mention its functional blocks?
b) Draw the appearance of data in the read, write machine cycles?
5. a) Write an ALP to find a least number in a series of four 8-bit numbers.
b) Write an ALP for arithmetic operation.
6. a) Explain the operation of 3-phase induction motor and derive the expression for resultant flux produced.
b) Why 1- ϕ induction motor is not self starting – justify.
7. a) With the help of neat sketch explain about working of induction type of over current relay.
b) Write short notes on Restriking voltage, Recovery voltage, zero current interruption.
8. a) State the different types of Controllers for the speed control of dc & ac motors?
b) Explain architecture of Microprocessors (RISC & CISC) in detail.

