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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

MINING ENGINEERING
Seventh Semester
MI 5701 – MINE LEGISLATION AND SAFETY
(Regulation 2019)

Max. Marks: 100

Time: 3 hrs

- CO1 To provide an insight to various laws, rules and Acts related to Mines Safety and mining legislation applicable to the mineral industry.
- CO2 To learn the procedures to obtain necessary permission from the regulatory agencies for opening, operation and closure of mines in respect of mine safety.
- CO3 To analyze the accidents and prepare the accident enquiry reports.
- CO4 To understand the significance of mine diseases affecting the health of persons working in the mine.
- CO5 To carry out the risk assessment, safety audit process and prepare the safety management plan for the mines.

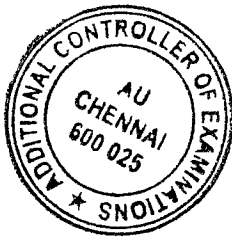
BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)

(Answer all Questions)

Q.No	Questions	Marks	CO	BL
1	What are the constitutional powers provided under Entry 54 of List I in the Indian Constitution for carrying out the mining operations in India?	2	CO1	L1
2	What are the qualifications and appointment of safety officer under the provisions of the Coal Mines Regulations 2017?	2	CO1	L1
3	Spell out the four main duties of 'Training Officer' as per Mines Vocational Training Rules, 1966.	2	CO2	L1
4	Enumerate the constructional features & uses of any two types of fencing to be used in the mines as per the DGMS Cir. No.11 of 1959.	2	CO2	L2
5	Specify the four 'Notified Minerals' declared as per the 4 th schedule in our country.	2	CO3	L3
6	Who can prepare the Mining Plans as per the MCR 2016?	2	CO3	L3
7	What is EIA? Why do EIA?	2	CO4	L4
8	What are the notified diseases as per the Mines Act?	2	CO4	L5
9	Write down any four key recommendations regarding the 'Safety, Health, and Welfare of Contractual Workers' to be employed in the mines, made in the 11 th safety conference on safety in mines.	2	CO5	L6
10	Write a short note on 'Pit Safety Committee' in mines.	2	CO5	L5



PART- B(5x 13=65Marks)

Q.No	Questions	Marks	CO	BL
	Assume that you are appointed as the General Manager (Projects) of a leading mining company and you are given the responsibility of opening a greenfield mining project producing 5 Million Tonnes of Iron ore with a stripping ratio of 1:2.5. Explain the various legal procedural steps involved while opening of a mineral deposit in our country. Assume your own conditions wherever required.	6	CO1	L1
11 (a)		7	CO1	L1
OR				
11 (b)	Write down the provisions of the Mines Act, 1952 (Revised) in related to (i) Employment of women in above ground and below ground (ii) Powers to prohibit employment in certain cases.	6	CO1	L1
		7		
12 (a)	Discuss the relevant provisions of the Coal Mines Regulations, 2017 regarding the following:			
	(i) Drilling, charging, stemming and firing of shot-holes	6	CO2	L2
	(ii) Working near mine boundaries in belowground mines	4		
	(iii) Place of accident not to be disturbed	3		
OR				
12 (b)	A large mechanized opencast mine is being planned for the production capacity of 10 MT per annum with a stripping ratio of 1:2.5 in a virgin area. Briefly state and discuss the statutory notices that are to be sent and permissions/ relaxations to be obtained. What steps should be taken to select, recruit and train the workman, staff and officers?	13	CO2	L2
13 (a)	(i) Explain briefly the various constitutional provisions existing to protect the environment, forest, wild-life, and biodiversity in our country.	7	CO3	L3
	(ii) Write a note on ' Public Hearing ' process as stipulated in EIA Notification 2006.	6	CO3	L3
OR				
13 (b)	(i). Explain briefly the different steps involved in 'Auctioning of Mining Lease areas.	7	CO3	L3
	(ii) What are the legal procedures existing to the PL or ML when the minerals vest with private persons?	6	CO3	L3
14 (a)	What could be the occupational health problems with increasing mechanization in an opencast coal mine? What steps should be taken to guard against the same.	13	CO4	L4
OR				
14 (b)	A large open cast coal mine is approaching a village hutment that cannot be vacated. What actions would you take to fulfill production targets with due regard to safety. Draw a detailed plan of action for the same.	13	CO4	L4

- 15 (a) Inundation continues to be a major hazard in below ground working of coal mine. As a mine manager, what actions would you take to identify and eliminate this hazard from your mine? Draw an action plan for the same. 13 CO5 L4

OR

- 15 (b) Write a note on the following: 6
 (i) DGMS based Risk Assessment and Risk Management Approach CO5 L4
 (ii) Safety Audit 7

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16.	A 5.0 m thick coal seam was being extracted by opencast method deploying HEMMs. The overburden comprised of a 24 m includes thick cover of soft black cotton soil followed by shale and sandstone. A sudden failure of benches for length of about 400 m and part of a dump lying near the edge of the quarry occurred burying two shovels and four dumpers resulting in death of six operators and an overman. In the capacity of the Mine Manager, write an enquiry report of the accident bringing out contraventions, responsibilities, and suggestions to prevent similar accident in future. Assume your own conditions.	15	CO3	L6



