22

FOR EVALUATOR'S USE ONLY

Sub. Code : **22**

Optional Paper

Mining Engineering : Paper – I

Time : 3 Hours / Maximum Marks : 200 / Total Pages : 32

Evaluation Table (For Evaluator's Use Only)

PART-A				PART-B				PART-C				Grand Total	
QN	E-1	E-2	AC	QN	E-1	E-2	AC	QN	E-1	E-2	AC	PART-A	
1				21				33				PART-B	
2				22				34				PART-C	
3				23				35				Total	
4				24				36				(–) Marks	
5				25				37				Final Total	
6				26				38				Marks in Words	
7				27				39					
8				28									
9				29									
10				30								Remarks of Evaluator/Chief Evaluator	
11				31									
12				32									
13													
14													
15													
16													
17													
18												Remarks of Scrutiniser	
19													
20													
Total													
Evaluator's Sign													

07 / 22-I

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PART – A

Marks : 40

Note : Attempt all the **twenty** questions. Each question carries **2** marks. Answer should not exceed **15** words.

1 Why the chain saw is not popular as compared to wire saw ?

2 What is back in the underground excavation ?

3 What are the average percentages of Carbon in wood, peat, lignite, bituminous coal and anthracite ?

4 What are the main factors on which the drilling performance depends ?

5 Which type of shaft is best suited for side pressure and resistance to air current ?

6 What are the methods of mining of placer deposits ?

7 What is the break even stripping ratio in surface mine ?

8 A tyre size used in dumper is 18.00 × 25 × 24. Indicate for what the dimensions are used?

9 What are the advantages of double unit longwall face over single unit face ?

10 Explain slippage in friction sheave hoisting by Tension formula.

11 What is the process of manual testing of roof for support ?

12 What is leaching ?

13 What are the advantages of larger height benches ?

14 What is slot in Underground metalliferrous mining ?

15 What is Hydraulic Profile with respect to hydraulic stowing ?

16 What are the thicknesses for very thin, thin, medium thick, thick and very thick ore deposits?

17 What will be the maximum tractive effort developed by a 25 tonne diesel locomotive of 75 KW, if the coefficient of adhesion is 0.25.

18 On what parameters does the head developed by a centrifugal pump depend ?

19 What are main components of cycle time of a shovel ?

20 What is fleet angle ?

PART – B

Marks : 60

Note : Attempt all the **twelve** questions. Each question carries 5 marks. Answer should not exceed 50 words.

21 Enumerate the benefits of surface continuous miners.

22 What are the advantages of panel system in Bord and Pillar method of work of coal ?

23 What is indexing in the percussive drilling ?

24 What are the factors which decide location of shaft in underground coal mine ?

25 Explain the process of Dredging.

26 Explain the construction of diamond wire used for production of marble blocks.

27 Explain the principle of Shrinkage stoping.

28 Explain the working of endless rope haulage by use of Screw clips, small man clips, cam clips and lashing chain.

29 A 50 tonnes locomotive is connected to a train of 150 tonnes. The train is to be hauled at a speed of 20 km/hr with a acceleration of 0.20 m/s^2 up a slope of 1 in 200. Frictional and other resistances are 70 N per tonne mass. Calculate the power that the locomotive has to develop.

30 Draw a longwall face diagram depicting face, stable, tail gate, goaf, strike, dip break line and other important features.

31 What specifications have been laid down by ISRM for rock sample preparation for laboratory testing ?

32 Explain proved, indicated and inferred reserves.

PART – C

Marks : 100

Note : Attempt any **five** questions. Each question carries **20** marks. Answer should not exceed **200** words.

33 A 20 m thick very rich lead zinc deposit is dipping at an inclination of 66° from the horizontal and is outcropped. It is decided to produce 1.25 million tonnes of ore from the mine per annum. Draw a layout of mechanized surface mining system. Assume your own conditions.

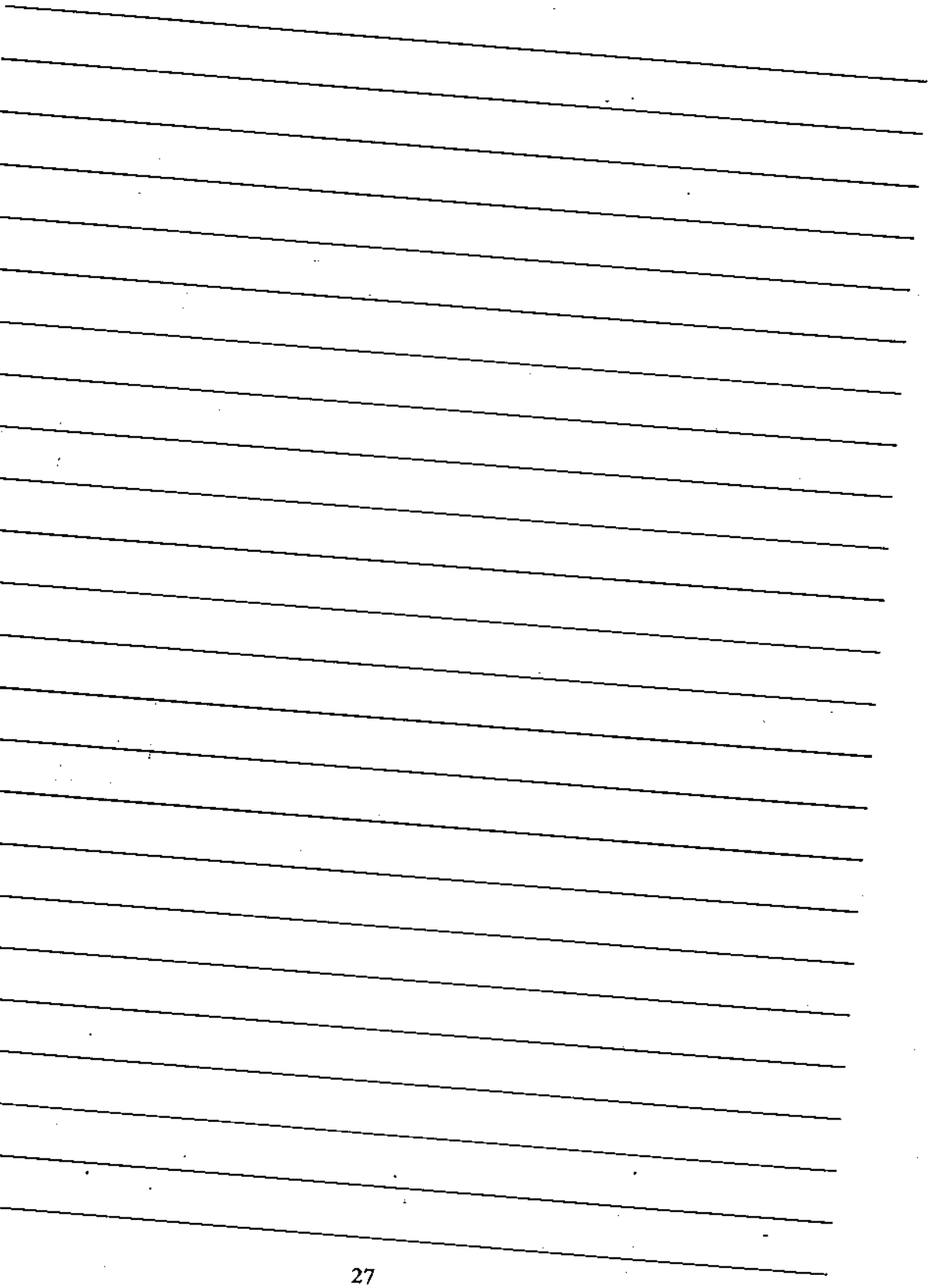
34 Explain the principles and factor influencing pillar extraction technique in Bord and Pillar coal mining.

35 Explain Sublevel Caving method of working for metalliferrous mining by the help of neat sketch.

36 What is Blind cut in marble mining ? Explain it in detail and its advantages over other marble techniques.

37 A direct haulage is 500 m long and dips at 1 in 4. Coal tubs are hauled up the road in sets of 8, using a rope of 18 mm dia. The tub has a tare of 275 kg and a capacity of 650 kg of coal. What should the weight of rope round stranded with fiber core for the duty? What should be the diameter of the haulage drum ? Maximum speed of the rope is 10 Km/Hr.

38 Explain the process, sequence of development, cycle of operation, conditions of use, advantages and disadvantages of Hydraulicking.



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07 / 22-I

39 Briefly summarize the state of stresses in the ground and commonly adopted approaches for the stress measurement.

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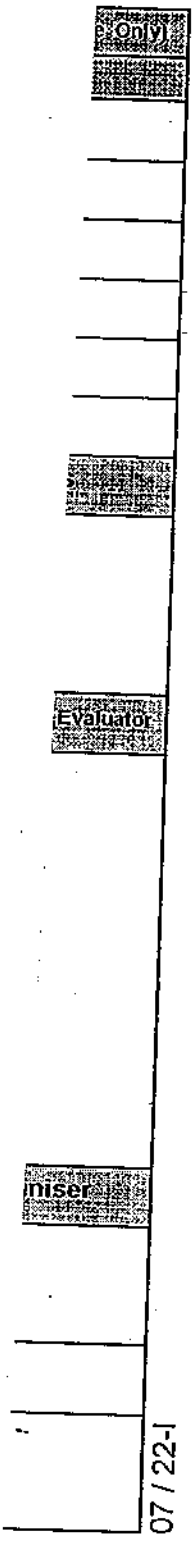

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