B.E.(with Credits)-Regular-Semester 2012-Mining Engineering Sem V

MN503 - Drilling and Blasting Engineering

P. Pages : 2 **GUG/W/16/3804**

Time : Three Hours * 3 9 8 9 * Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.
4. Marks are indicated to the right.

1. a) Explain the mechanism of the following : **8**

i) Thermal drilling

ii) Rotary percussive drilling.

b) Explain effect of following on performance of drilling. **8**

i) Strength characteristics of rock

ii) Normal thrust and rotational speed.

OR

2. a) Classify various types of drilling. **8**

b) What is drill ability ? How is it interpreted? **8**

3. Explain various properties of explosive. **16**

OR

4. a) Explain construction and working of delay delonator based on pyrotechnique. **8**

b) Explain following terms : **8**

i) Powder factor

ii) Impedance of explosive

iii) Specific energy of rock w.r.t. blasting

iv) Need of delay

5. Explain following : **16**

a) pre-cut blasting

b) bench blasting in shaft

c) deck blasting

d) V-pattern of blasting in o/c

OR

6. Explain the following : **16**

i) Solid blasting in U/G coal mines.

ii) Diagonal blasting in o/c

iii) Wedge cut pattern

7. a) Explain "In-BLAST" monitoring. **12**

b) Explain line drilling as technique of controlled blasting. **4**

OR

8. a) What is misfire ? Explain causes of misfire. **8**

b) Explain technique of Muffled blasting. **8**

9. a) Explain special technique of blasting. **16**

a) in B/G method

b) with Deck

c) in ring pattern in stopes

OR

10. a) Explain causes and mechanism of ground vibration due to blasting. **8**

b) Write the precautions to be observed while blasting in fiery seam. **8**

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