Week 2 Assignment

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The due date for submitting this assignment has passed. Due on 2018-09-05, 23:59 IST.

As per our records you have not submitted this assignment.

1) In Top hammer drill, the piston strikes on the _________ to transfer the energy. 1 point
   - a. Bit
   - b. Adaptor
   - c. Drill
   - d. None of these

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   b. Adaptor

2) The Percussive drills works based on _______ cutting principle. 1 point
   - a. Impact action
   - b. Rotary action
   - c. Both (a) & (b)
   - d. Cutting and ploughing

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   a. Impact action

3) The property that CANNOT be determined from uniaxial compressive strength test of a rock sample fitted with strain gauges is 1 point
   - a. Cohesion
   - b. Poisson's ratio
   - c. modulus of elasticity
   - d. dilation

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   a. Cohesion

4) In a triaxial compression test if $\sigma_1$ is axial stress and $\sigma_2$ and $\sigma_3$ are confining stress, then ___ 1 point
   - a) $\sigma_3 > \sigma_2 = \sigma_1$
   - b) $\sigma_1 > \sigma_2 = \sigma_3$
   - c) $\sigma_1 = \sigma_2 > \sigma_3$
   - d) $\sigma_1 < \sigma_2 = \sigma_3$

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   b) $\sigma_1 > \sigma_2 = \sigma_3$
5) Match the following mechanical properties with the formulae considering $C =$ Cohesion, $F =$ Force, $r =$ Radius

Stress, $\varepsilon =$ Strain, $F =$ Force, $r =$ Radius

<table>
<thead>
<tr>
<th>Mechanical properties</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Modulus of elasticity</td>
<td>$1. C + \sigma_n \tan \phi$</td>
</tr>
<tr>
<td>Q. Compressive strength</td>
<td>$2. \varepsilon_{\text{tensile}} / \varepsilon_{\text{longitudinal}}$</td>
</tr>
<tr>
<td>R. Shear strength</td>
<td>$3. \sigma / \varepsilon$</td>
</tr>
<tr>
<td>S. Poisson’s ratio</td>
<td>$4. F / \pi r^2$</td>
</tr>
</tbody>
</table>

a. P-1, Q-2, R-3, S-4
b. P-1, Q-4, R-3, S-2
c. P-3, Q-4, R-1, S-2
d. P-3, Q-2, R-1, S-4

No, the answer is incorrect.
Score: 0
Accepted Answers:
c. P-3, Q-4, R-1, S-2

6) Match the following for a drilling system

Component | Function
---|---
(P) Drill | (1) Utilization of energy in fragmentation of rock
(Q) Drill rod | (2) Reduction of energy loss due to regrinding
(R) Drill bit | (3) Conversion of original form of energy into mechanical
(S) Flushing medium | (4) Transmission of energy from prime mover to applicator

a. P – 3, Q – 1, R – 2, S – 4
b. P – 4, Q – 1, R – 3, S – 2
c. P – 3, Q – 4, R – 1, S – 2
d. P – 2, Q – 1, R – 3, S – 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
c. P – 3, Q – 4, R – 1, S – 2

7) From the stress-strain diagram shown below, the tangent moduli of elasticity, in MPa _______

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 4.0

8) A piece of coal sample weights 10 kg in air and 2kg when immersed in water (sp. gr. 1). The specific gravity of the coal sample is _____
9) A sandstone has modules of elasticity of 1000 MPa and Poisson's ratio is 0.25. Its shear modulus, in MPa is

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 1.25

10) A core of 10 cm height and 5.4 cm diameter is subjected to diametrical point loading. The ram of the hydraulic jack has a cross sectional area of \(12.5 \text{ cm}^2\) and the pressure dial gauge reading was 3 MPa on failure. The point load strength, in MPa is

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 1.2, 1.3

11) A rock specimen of 120 mm length and 54 mm diameter is subjected to uniaxial compressive loading. Two strain gauges, one axially and other radially, are attached to the specimen, which exhibits the breaking loads 0.0082 m/m and 0.0023 m/m respectively, the Poisson’s ratio of the specimen is

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.27, 0.29

12) During Brazilian test of a cylindrical rock core of 54 mm diameter and 22 mm thickness, failure occurred at diametrical loading of 11.4 K.N. The tensile strength of rock, in MPa will be

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 6.1, 6.2

13) From the stress-strain diagram shown below, the secant moduli of elasticity, in MPa
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 2.22