

NAME:

GEOLOGY 340 – SEDIMENTATION AND STRATIGRAPHY

EXAM I

- QUESTION 1 _____ (20 POINTS)
QUESTION 2 _____ (20 POINTS)
QUESTION 3 _____ (20 POINTS)
QUESTION 4 _____ (20 POINTS)
QUESTION 5 _____ (20 POINTS)
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ANSWER EACH OF THE FOLLOWING QUESTIONS ON THE PAPER PROVIDED.

- (1) Describe each of the following processes and evaluate its importance in the production of sedimentary components:
- (a) hydrolysis of feldspars
 - (b) oxidation-reduction of ferromagnesian silicates
 - (c) dissolution of calcite.
- (2) Discuss the effects of grain shape, grain size, and grain density on sediment entrainment and settling from a fluid.
- (3) Explain the significance of the following grain size statistics and compare and/or contrast their use in interpreting the following sedimentary deposits:
- (a) mean
 - (b) mode
 - (c) skewness
 - (d) standard deviation
 - (i) fluvial environment
 - (ii) beach environment
- (4) After finding in the field a trough-cross-bedded gravel deposit with a mean grain size of 3 mm and mean cross-bed set thickness of 1 meter, you want to use your laboratory flume (depth 40 cm, 0.8 mm sand) to help interpret the minimum flow velocity required for this deposit. Is this experiment possible, why or why not? What adjustments must be made to your experiment?
- (5) In 1962, Bouma divided turbidite deposits into five distinct units (labelled A through E) reflecting a sediment-laden turbidity current of decreasing velocity. Please describe each unit in terms of flow regime, competence, and capacity.

