ESS OLYMPIAD ANSWER KEY

Part 1:

1) Troposphere, Stratosphere, Mesosphere, Thermosphere
2) Lithification
3) Oxygen, Silicon
4) Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (THIS ORDER ONLY)
5) Mars, Jupiter
6) Olympus Mons, Mars
7) a. 13.7 billion years b. 4.5 billion years
8) c) Corundum
9) Full moon
10) First Quarter, Third Quarter
11) Cold front
12) d) Maritime Tropical
13) A. Trade Winds B. Prevailing Westerlies C. Polar Easterlies
14) a. Photosphere b. Corona
15) Coriolis effect/force
16) Pangaea
17) Polaris
18) Inner core, outer core, mantle crust
19) Triassic, Jurassic, Cretaceous
20) b) Contour lines
21) Body waves: S and P waves Surface waves: Love and Rayleigh waves
22) First: P wave Last: Rayleigh wave
23) Copernicus
24) Mariner
25) Esker
26) Beaufort (wind force) scale
27) i. Metamorphic ii. Sedimentary iii. Metamorphic iv. Igneous
28) a) 71%
29) Ganymede, Callisto, Io, Europa
30) d) B

Part 2

31) Cold front: cumulonimbus Warm front: stratus (accept variations of stratus)
32) Cold front: thunderstorms Warm front: snow, sleet, freezing rain, rain (each worth ¼ pt)
33) Stratosphere and Thermosphere. Stratosphere has ozone layer, Thermosphere absorbs lots of incoming solar energy and also has few particles
34) Stationary front, cold and warm fronts form, rotating counterclockwise, cold front overtakes warm front forming occluded front

35) III. Strombolian, I. Vulcanian, IV. Pelean, II. Plinian
36) a. Rhyolitic b. Basaltic
37) A. Dendritic C. Radial C. Trellis D. Rectangular
38) G2 (accept just G)
39) Chaparral
40) Isostasy
41) Cenozoic era
42) Devonian, Silurian periods
43) i. Gulf Stream, ii. Kuroshio Current
44) i. Aluminum ii. Iron iii. Lead
45) Henrietta Swan Leavitt
46) Conchoidal fracture
47) b) Procyon - Canis Major
48) Eon: Phanerozoic Era: Cenozoic Period: Quaternary Epoch: Holocene
49) b) Olivine
50) B/c the outer core is molten and S waves can only travel through solids

Part 3:

51) Nebular Hypothesis
52) ii. Amphibole, iii. Pyroxene
53) 1. O-S (Ordovician-Silurian) extinction, 2. Late Devonian extinction, 3. P-T (Permian-Triassic) extinction, 4. K-Pg (Cretaceous-Paleogene) extinction
54) A. Angular unconformity B. Disconformity C. Paraconformity D. Unconformity
55) Zeeman Effect
56) Deneb, Altair, Vega
57) i) biological ii) clastic iii) chemical iv) clastic
58) (Accept: 6.92-8.92), B
59) d) Yazoo tributary
60) Kure atoll