

Marks Scored:

KATHMANDU UNIVERSITY  
End Semester Examination  
March/April, 2017

Level : B. Sc.  
Year : IV

Course : ENVS 423  
Semester : I

Exam Roll No. : Time : 30 mins.

F. M. : 20

Registration No. :

Date :

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SECTION "A"

[20 Q. × 0.5 = 10 marks]

Mark "✓" in the most appropriate box.

1. The upper most part of the accumulation area is called  
 wet snow zone  ablation zone  dry snow zone  percolation zone
2. Density of firn ranges from  
 100-300 kg m<sup>-3</sup>  830-917 kg m<sup>-3</sup>  700-800 kg m<sup>-3</sup>  400 - 830 kg m<sup>-3</sup>
3. If we can insert our fore-finger into a snowpack then the snowpack is called  
 hard  soft  medium hard  very hard
4. Which oxygen isotope is much abundance in nature?  
 <sup>16</sup>O  <sup>17</sup>O  <sup>18</sup>O  <sup>19</sup>O
5. Ice layers may present at  
 wet snow zone  ablation area  inside the glacier  equilibrium line
6. In general, glacier mass balance will be negative in  
 ablation area  wet snow zone  dry snow zone  accumulation area
7. Total number of glacial lakes in Nepal is  
 3808  1460  1466  2808
8. The Little Ice Age period was before about  
 4.5 years  45 years  450 years  4500 years
9. En-glacial channels are found  
 at the bottom of a glacier  on the surface of a glacier  
 at the end of a glacier  inside the glacier ice
10. Air bubbles found in glacier ice might change to  
 water vapor  oxygen isotope  hydrogen isotope  clathrate hydrate
11. Deformation that results from movement within or between individual ice crystals is called  
 stress  strain  creep  dislocation
12. Any part of a glacier which has ceased to flow and usually covered with debris is called  
 active ice  dead ice  blue ice  dirty ice

13. Under the present condition, land ice has  $\delta$ (per mil) values around  
 -30                       -40                       -50                       -60
14. Oxygen isotope ratio is used to know past  
 air temperature     humidity                       rainfall                       snowfall
15. Ice coring in the Himalayas is not suitable because of  
 sub-surface melting     surface and basal melting  
 warm place     cold place
16. Which of the following heat budget component links the sublimation process?  
 Radiation                       Sensible                       Latent                       conduction
17. Which of the following glacier type is not found in Nepal?  
 Surging glacier     Rock glacier  
 Debris-covered glacier     Valley glacier
18. A glacier whose mass balance remains zero for many years is called  
 stationary state     advancing state     retreating state     in steady state
19. Surface melt water may reach to the sub-glacial drainage system through  
 sub-glacial channel     supra-glacial lakes  
 seepage     Moulin
20. During past glacial period, sea level lowered by  
 100-140 m                       10-14 m                       1000-1400 m                       1-4 m

SECTION "B"

[20 Q.  $\times$  0.5 = 10 marks]

Fill in the blanks.

21. Ice melt under a debris layer of thickness of few ..... will be highest.
22. Density of depth hoar ranges from .....
23. The stress acting vertical to glacier surface is called ..... stress.
24. ELA moves ..... in inter-glacial period.
25. Two hydrogen isotopes are .....
25. A dome shaped mass of ice covering area more than 50,000 km<sup>2</sup> is called .....
26. Small ponds on glacier surface are called.....

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27. ....melting does not occur in polar glaciers.
28. The intermediate form between snow and ice is called .....
29. Nepalese glaciers are.....accumulation type glaciers.
30. In the supra-glacial environment, hydraulic systems develops an .....pattern.
31. Snowflakes and snow crystals are made up of .....
32. Snow flakes will be larger if they are formed in.....condition.
33. .... debris layer on glacier will accelerate melting.
34. Removal of mass occurs in .....area of a glacier.
35. Transformation of snow to ice in .....region is fast.
36. Vertical well like structure in glacier is called.....
37. The water molecules in an ice crystal form a ..... lattice.
38. A glacial lake dammed by earth materials (sand, stone, debris) is called .....
39. Snow line moves .....due to global warming.
40. Snow line and .....coincide in the Himalayas.

