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UNIVERSITY OF PETROLEUM & ENERGY STUDIES
(P.O. Bidholi, via Premnagar, Dehradun Pin: 248 006)

End-semester Examination-December, 2017 | **Max. Marks: 100**
Name of the Program: B. Tech (*Geoinformatics Engineering*) | **Semester – III**
Course Title: Introduction to Geoinformatics | **Code: GNEG 201**
This question paper has 2 (*two*) pages | **Duration: 3 hours**

Note: Include appropriate Question Number. Do not split answers on largely separated answer sheets. Overwriting, striking-off answers, illegible answer or any kinds of incorrect scribbling will not attract evaluation. Use pencil while drawing figures and other forms of charts.

SECTION: A

Questions from 1 to 10 carry 2 (*two*) marks each. Answer all of them? (10 × 02 = 20)

1. Represent Equitorial radius (a) and Polar radius (b) in a diagram and derive flattening (f)?

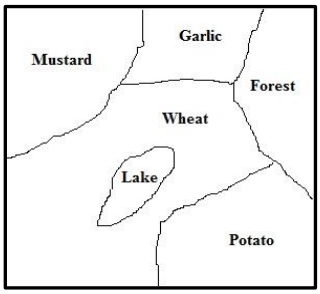
2. Show Topography and Geoid surfaces?

3. If ratio 1:250,000 what could be that mean with respect to the ground?

4. Comment on normal cylindrical projection with traverse cylindrical projection?

5. ArcGIS is a very useful technique in Facilities Management? Give 4-suitable examples for facilities?

6. Show topological relationships between point and area?

7. 

Show raster data model for the adjacent image?

8. What is principal point and fudicial marks in aerial photography?

9. Comment on ‘gamma’ rays and ‘microwave’ ways in electromagnetic spectrum?

10. Identify ‘line features’ in natural land-use conditions?

SECTION: B

Questions from 11 to 20 carry 6 (*six*) marks each. Answer all of them? (10 × 06 = 60)

11. Identify typical errors in digitization? (6)

12. What are the different segments in GPS technology? (2 + 2 + 2)

13. Statement: Large scale photos or maps show a smaller area but more in detail compared to Small scale photos or maps that show a large area but less in detail. Justify? (6)

14. What is the good and bad GDOP in GPS technology? What is multipath error? (4 + 2)

15. Show a) erase, b) split and c) join in ArcGIS? (2 + 2 + 2)

16. Give Planar or azimuthal projection system classification? (4 + 2)

17. What are the advantages of Vector data **(OR)** What are the advantages of Raster data? (6)

18. Critique on the major data sources for GIS? (6)

19. What is a sidelap and endlap in aerial photography? What is flight planning? (2 + 4)

20. Identify GIS-layers useful in the site selection of a retail market using ArcGIS? (6)

SECTION: C

Questions from 21 and 22 carry 10 (*ten*) marks each. Answer both of them? (2 × 10 = 20)

For developing health care facilities for a city like Dehradun, the following fields are identified:
a) City map, b) Area Pincode, c) Street network, d) Major police stations, e) Diagnostic centers, f) population density, g) family income, h) Mobile clinics, i) Bank and financial institutions, j) blood banks, k) blood donar distribution, l) particulars of blood donars based on blood-groups m) contact address and telephone numbers, n) cost per different medical treatments, o) ambulance stations etc.

21. Choose any 10-fields of the above and using appropriate symbology, comment topological relationships? (10)

22. Develop a short research project title based on any 5-fields? How overlaying of those 5-fileds would yield meaningful outcome of the project? (3 + 7)