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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 (*Mining Engineering*) | **Semester – VII**
Course Title: Placer Deposits and Viable Mining | **Code: MIEG 431**
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 3 (*three*) marks each. Answer all of them? (10 × 03 = 30)

1. Comment on 'alluvial' placers and 'aeolian' placers?
2. Show side view of long tom?
3. How concentration of heavy minerals usually take place?
4. Is open-cut method a surface- mining? Justify for placer deposits?
5. Identify differences between coarse concentration and fine concentration?
6. Evaluate 'Factors controlling deposition of placer'?
7. Identify depositional sites for placers?
8. Identify differences between heavy minerals and resistate minerals?
9. Statement: Mode of formation of placers include behind rock bars? Explain using a figure?
10. Critique on Hydraulic mining in placer deposits?

SECTION: B

Questions from 11 to 15 carry 8 (*eight*) marks each. Answer all of them? (05 × 08 = 40)

11. Classify REEs based on composition and give suitable examples? What are the applications of Europium? (5 + 3)

(OR)

Give an account of strategic importance of REE to India? (8)

12. Give suitable flow-chart for mineral separation process? (8)

13. Illustrate both nuclear and non-nuclear applications for Thorium? (8)

14. Draw neat sketch of spiral concentrator?
Identify the adjacent figure and give its applications? (5+3)

15. Justify why Artisanal and small-scale mining thrives in gold mining? **(OR)** (8)

Give detailed account for Gravity Separation Methods? (8)

SECTION: C

Questions from 16 to 18 carry 10 (*ten*) marks each. Answer both of them? (03 × 10 = 30)

16.

Mineral	**Application**
Garnet	Computer monitor
Sillimanite	Coating and welding electrodes
Ilmenite	Thorium and rare earths
Zircon	Pigment and plastic industry
Rutile	Abrasive
Monazite	Refractories

Match the table, above and identify the figure in the last column and give its applications? (7 + 3)

17. Show Hydraulic Mining Circuit? What is the significance of the adjacent figure? (6+4)

18. Explain types of excavation methods using dredging? (4+3+3)

(OR)

Give procedural mechanisms and applications of Sonic Drilling methods? (10)