**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**
**End Semester Examination, May 2022**

Course: Human Computer Interface
Semester: 4
Program: B.Tech (CSE)
Time         : 03 hrs.
Course Code: CSEG2038P                                    Max. Marks: 100

Instructions:

| | SECTION A (5Qx4M=20Marks) | | |
|---|---|---|---|
| S. No. | | Marks | CO |
| Q 1 | Discuss graphic user interfaces and web user interfaces briefly using appropriate examples. | 4 | CO1 |
| Q 2 | The ten heuristics of usability help in refining a potential design into a good design. Justify your answer with suitable example. | 4 | CO2 |
| Q 3 | Combination of ethnography and prototyping is useful for the requirements elicitation process during interface design process. Comment. | 4 | CO3 |
| Q 4 | State the goals in development of BCI systems. | 4 | CO4 |
| Q 5 | State the problems users with cognitive impairments and learning difficulties face and list the steps that could be taken into consideration to ensure that your design supports users with those impairments. | 4 | CO5 |
| | SECTION B (4Qx10M= 40 Marks) | | |
| Q 1 | Bring out the importance of forward and Inverse Fourier Transforms with the help of examples. | 10 | CO2 |
| Q 2 | Explain the following Terms: Hidden Markov Model, Gaussian Mixture Model, Artificial Neural Networks. | 10 | CO3 |
| Q 3 | List the advantages and disadvantages of "Multimodal Fusion" | 10 | CO4 |
| Q 4 | Bring out the importance of overcoming the various interactive challenges by a HCI designer. | 10 | CO5 |
| | SECTION-C (2Qx20M=40 Marks) | | |
| Q 1 | 1.  Write a short note on the following : <br><br>  a)  Wavelet transform | 20 | CO4 |

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|---|---|---|---|
| | b) Kalman filter | | |
| | c) Neural activity in motor cortex and related area. | | |
| | d) Multimodal interface. | | |
| Q 2 | "Cognitive psychology is a specific field within psychology that studies mental processes such as perception, memory, problem-solving, emotions and learning." Elaborate. | 20 | CO5 |