JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October 2018

B.Tech. VII Semester

Dr. Surabh Rawat

COURSE CODE: 10B13CE736 MAX. MARKS: 25

COURSE NAME: Underground Technology

COURSE CREDITS: 3 MAX. TIME: One Hour Thirty Minutes

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

[1] State the method that should be used for excavation for basement construction for the following cases: **[6]**

Case	No. of floors of basement	No. of floors of superstructure	Excavation Depth (m)	Soil type	Depth to water table (m)	Distance to nearest building (m)
A	1	3	5	Clayey silt	10	50
B	1	3	5	Silty sand	10	10
C	2	10	9	Clean sand	5	50
D	2	10	9	Silty sand	8	10
E	2	10	9	Silty sand	15	Hospital at 10
F	4	15	16	Silty clay	18	20

[2] In secant piles walls, reinforcement is sometimes provided only in alternate piles. Why? In which piles is the reinforcement avoided: those installed in the first stage or those in the second stage. **[5]**

[3] With the help of diagrams, describe the difference between 'Excavation without side Support' and 'Excavation with Side Support'. **[5]**

[4] With reasons explain, how underground construction is different from over ground construction. **[3]**

[5] From among

(i) Constructing a cofferdam and casting the concrete in- situ

(ii) Floating a prefabricated box caisson and lowering it on to the bearing stratum

(iii)Sinking a well foundation and plugging it

Which would be appropriate for constructing a 10 m wide foundation on a strong stratum beneath a river bed for the following three cases: **[6]**

Case	Depth of water above bed	Depth of strong bearing below bed
Case A	2 m	2 m
Case B	20 m	3 m
Case C	10 m	20 m