NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA
MID - SEM EXAMINATION, 2019

SESSION: 2018-2019 (Spring)

B. Tech. Section/Slot: S1/TE

Dept. Code: BM. **Subject**: Fundamental of Tissue Engineering, **Subject code**: BM 324

No. of pages:01 **Full Marks**: 30 **Duration**: 2Hours

All parts of a question should be answered at one place.

Q. No.	Particulars	Marks
1.	a) Explain the principle of phase separation and explain any one method to fabricate 3D porous scaffold using phase separation?	(5)
	b) Explain the importance of surface property.	(2)
	c) Enumerate the major role of scaffold in tissue engineering. What properties do you think an ideal scaffold should possess that would be beneficial for tissue repair and regeneration.	(3)
2.	a) Classify the techniques used for fabricating 3D scaffold. Explain any one method of preparation of 3D porous scaffold.	(5)
	b) Write a short note on 3D bio printing?	(3)
	c) Name two important bioceramics and two natural biopolymers for tissue engineering.	(2)
3.	a) Write the principle of needle based electrospinning method. What are the drawbacks of this method? How to make 3D scaffold using this technique?	(5)
	b) A polymeric film with dimension 5 x 2 cm^2 made from a blend of poly vinyl alcohol and sodium alginate was subjected to Universal Testing Machine to measure its mechanical properties. The film was stretched by 0.4cm applying a load of 50N. Calculate the longitudinal stress, strain and Young's modulus of the biopolymeric film?	(5)

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