Reg. No…….. Name……

B.Sc. DEGREE END SEMESTER EXAMINATION OCTOBER 2017

SEMESTER **–5: BOTANY (CORE COURSE)**

COURSE: **15U5CRBOT08: CELL MOLECULAR BIOLOGY AND EVOLUTION**

(For Regular 2015 admission)

Time: Three Hours Max. Marks: 60

PART A

I. Answer **ALL** questions; each question carries ONE mark.

1. What are stem cells?
2. What is the function of the sigma factor?
3. What is anticodon?
4. What is metastasis?
5. At what locations in a eukaryotic cell does protein synthesis occur?
6. What is the function of endoplasmic reticulum?
7. Define gene.
8. What is retrogressive evolution? (1 x 8 = 8)

PART B

II. Answer **ANY SIX** questions; each question carries TWO marks

9. Why is primase required for replication?
10. What are nucleosomes?
11. Distinguish between intron and exon.
12. Briefly explain about chromosome bridge
13. Differentiate aneuploidy and euploidy.
14. How do the sugars of RNA and DNA differ?
15. What is the function of the Shine–Dalgarno consensus sequence?
16. What is point mutation?
17. Differentiate divergent and convergent evolution.
18. Briefly explain different types of speciation. (2 x 6 = 12)

PART C

III. Answer **ANY FOUR** questions; each question carries FOUR marks.

19. Write an account on special types of chromosomes.
20. What is the role of polyploidy in evolution?
21. What is meiosis? What is the significance of meiosis in sexual reproduction?
22. What is meant by genetic code? Enumerate the characteristic features of genetic code.
23. Differentiate oncogenes and tumor suppressor genes.
24. How did Meselson and Stahl demonstrate that replication in *E. coli* takes place in a semiconservative manner? (4 x 4 = 16)

PART D

IV. Answer **ANY TWO** questions; each question carries TWELVE marks.

25. Explain different theories of evolution.

OR

26. Explain the different structural aberrations found in chromosomes and how it affect the behaviour of chromosome during cell division?

27. Explain how does the process of transcription in eukaryotic cells differ from that in bacterial cells?

OR

28. Describe the basic structure of *lac* operon? Explain its functioning at high levels of lactose in the medium? (12 x 2 = 24)

****