

SEAT No. \_\_\_\_\_

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[81/Am4]

**SARDAR PATEL UNIVERSITY ANAND**

**Examination April, 2017**

**B. Sc-IV Semester (Fourth Semester)**

**US04EBIO 01- CELL AND MOLECULAR BIOLOGY**

**Thursday, 13<sup>th</sup> APRIL, 2017**

**Time: 2:00p.m. to 4:00 p.m.**

**Total Marks: 70**

- Q.1 Fill in the blanks by choosing appropriate option. (10)**
- (a) DNA synthesis occur during  
(a) Interphase (b) Prophase (c) Metaphase (d) Anaphase
  - (b) Post mitotic gap period is ..... phase  
(a) G1 (b) S (c) G2 (d) None of them
  - (c) Polytene chromosomes were discovered by  
(a) Balbiani (b) W. Waldeyer (c) Blackburn (d) Greider
  - (d) The chromosomal end is known as.....  
(a) Centomere (b) chromomere (c) Kinetochore (d) Telomere
  - (e) The speed of a centrifuge rotor is expressed as  
(a) RPM (b) rcf (c) rpm (d) None of them
  - (f) Incomplete sediment is obtained in -----centrifugation.  
(i) Isopycnic centrifugation. (ii) Rate-zonal centrifugation. (iii) Differential centrifugation. (iv) None of them.
  - (g) .....is the stationary phase in Gas Liquid chromatography  
(a) Gas (b) Liquid (c) Solid (d) All of them.
  - (h) First microscope was designated by -----  
(a) Knoll & Ruska (b) Watson & Crick (c) Jensen & Hans (d) Jacob & Monod.
  - (i) Source of electrons in Transmission Electron Microscopy is ..... shaped tungsten filaments  
(i) I (ii) v (iii) u (d) i
  - (j) -----method is more versatile faster and have more reproducibility  
(i) TLC (ii) HPLC (iii) GLC (iv) Paper.
- Q.2 Answer the following in short.(Any Ten) (20)**
- (a) Define cell cycle
  - (b) Give an account of Amitosis.
  - (c) State the different between mitosis and meiosis
  - (d) Write a function of chromosomes.
  - (e) Sketch and label typical chromosomes.
  - (f) Enlist morphological types of chromosomes according to the position of the centromere.
  - (g) Enlist types of column chromatography.
  - (h) Give application of Gas Liquid chromatography.
  - (i) Define centrifuge force.
  - (j) Explain the principle of compound microscope.
  - (k) Write the application of SEM.
  - (l) What is magnification?

[P.T.O]

- Q.3 (a) Describe Prophase 1 of Meiosis. (05)  
(b) Write note on stages of mitosis (05)

OR

- Q.3 (a) Write note on cell cycle. (05)  
(b) State the significance of cell division (05)

- Q.4 (a) Write notes on (a) Polytene chromosome (b) Heterochromatin (10)

OR

- Q.4 (a) Euchromatin (05)  
(b) What is sex chromosome? Describe its structure and types. (05)

- Q.5 (a) Write a note on HPLC system. (06)  
(b) Write application and uses of Paper chromatography. (04)

OR

- Q.5 (a) Differentiate between Rate zonal and Isopycnic centrifugation. (05)  
(b) Write difference between Differential Centrifugation and Density gradient centrifugation (05)

- Q.6 (a) Give an account on TEM(Transmission Electron Microscopy) (10)

OR

- Q.6 (a) Describe the principle and different parts of compound microscope and draw its pathway (10)

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