



Code Number:

**A**

# Aakash

Medical | IIT-JEE | Foundations

Corp. Office: Aakash Educational Services Limited, 3rd Floor, Incuspaze Campus- 2, Plot No. 13,  
Sector- 18, Udyog Vihar, Gurugram, Haryana - 122015

Time: 3 hrs.

**Mock Test Paper for Class-XII**

Max. Marks: 70

## BIOLOGY

Roll No.

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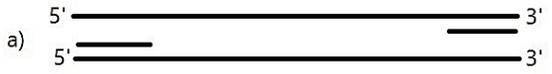
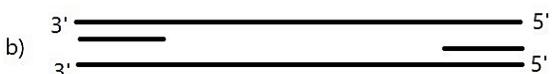
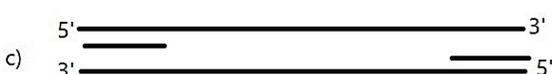
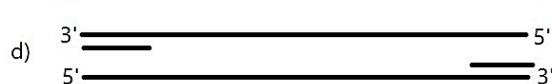
### GENERAL INSTRUCTIONS

Read the following instructions carefully and follow them:

1. The Question paper consists of parts **A, B, C, D** and **E**
2. **Part A - I** consists of **15 Multiple choice** questions,  
**Part A - II** consists of **5 fill up the blanks** questions
3. All the questions of **Part A - I and II** are to be answered **compulsorily**
4. **Part B** consists of **7 short answer type** questions carrying **2 marks** each, out of which **5 questions** to be answered
5. **Part C** consists of **7 short answer type** questions carrying **3 marks** each, out of which **5 questions** to be answered
6. **Part - D** consists of **V** and **VI**.  
**Part D - V** consists of **7 long answer type** questions carrying **5 marks** each, out of which **4 questions** to be answered.  
**Part D - VI** consists of **3 long answer type** questions carrying **5 marks** each, out of which **1 question** to be answered.
7. **Part E** consists of questions for visually challenged students only after the question number 44.

**PART-A**

**I. Select the correct alternative from the choices given below: 15 x 1 = 15**

1. **Statement-I:** Pollination does not guarantee the transfer of right type of pollen  
**Statement-II:** Compatible pollen- pistil interaction guarantee double fertilization
- (a) Both statements I and statement II are correct  
(b) Both statement I and statement II are incorrect  
(c) Statement I is correct but statement II is incorrect  
(d) Statement I is incorrect but statement II is correct
2. The secondary oocyte formation from primary oocyte occurs in which of the follicle?  
(a) Primary (b) Secondary (c) Tertiary (d) Graafian
3. Progenies with AB and O blood groups are not possible from which of the following mating parents?  
(a) O x AB (b) AB x B (c) AB x AB (d) AB x A
4. Another chemical name for the nitrogenous base thymine is  
(a) 2-Methyl uracil (b) 3- Methyl uracil (c) 4-Methyl uracil (d) 5- Methyl uracil
5. Select the correct match:
- | <b>Australian marsupials</b> | <b>Placental mammals</b> |
|------------------------------|--------------------------|
| (a) Spotted cuscus           | Flying squirrel          |
| (b) Spotted cuscus           | Bobcat                   |
| (c) Spotted cuscus           | Anteater                 |
| (d) Spotted cuscus           | Lemur                    |
6. Which of these ancient men protected their body with hide and buried their dead?  
(a) Homo habilis (b) Neanderthal (c) Dryopithecus (d) Homo erectus
7. Human Immuno Deficiency virus replicates in  
(a) B – cells (b) NK– cells (c) Helper T - cells (d) PMNL
8. The drug which is depressant and slowdown body function is  
(a) Smack (b) Crack (c) Hashish (d) Charas
9. Saccharomyces cerevisiae commonly called brewer's yeast is used for fermenting malted  
(a) Pulses (b) Cereals (c) Fruits (d) Vegetables
10. In the year 1963, the two enzymes responsible for restricting the growth of bacteriophage in E. coli were isolated. One of them cut DNA and the other added the group  
(a) Methyl (b) Ethyl (c) Phosphate (d) Hydroxyl
11. Which of the following is the correct representation of primer annealing step in PCR?
- a) 
- b) 
- c) 
- d) 



## PART-C

IV. Answer any FIVE of the following questions in 40 – 80 words each wherever applicable: 5 x 3 = 15

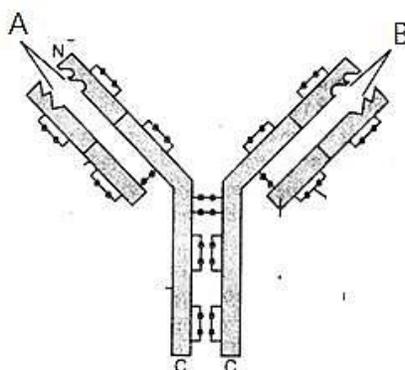
28. Draw a neat labeled diagram of monocot embryo.
29. What is menstrual cycle? Mention one pituitary and one ovarian hormone that play a role in menstrual cycle.
30. Write any three principles to be followed by people to be free from sexually transmitted infections.
31. Draw a labeled diagram of Stanley Miller's experiment in relation to chemical origin of life
32. Name the causative organism of the following diseases;
  - (a) Filariasis
  - (b) Ringworm
  - (c) Malaria
33. Mention the uses of following bioactive agents;
  - (a) Streptokinase
  - (b) Cyclosporin-A
  - (c) Statins
34. Describe the steps of decomposition that operate simultaneously on the detritus.

## SECTION-D

V. Answer any FOUR of the following questions in about 200 – 250 words each wherever applicable:

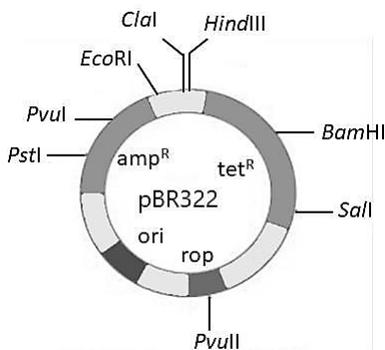
4 x 5 = 20

35. Draw a labeled diagrammatic sectional view of the human male reproductive system and label the given parts; Testes, Seminal vesicles, Glans penis, Epididymis, Urethra.
36. Represent schematically the results of two gene interaction by taking seed shape and seed colour in pea plant.
37. DNA is genetic material in both prokaryotes and eukaryotes, yet the packaging process in their cells is not same. Explain.
38.
  - (a) Differentiate innate immunity and acquired immunity
  - (b) Mention the cells involved in accomplishing the acquired immunity?
  - (c) Refer to the below given diagram and answer the questions;



- (i) Name the molecules trapped in the lymph nodes responsible for the activation of lymphocytes that bind to the 'A' and 'B' site
- (ii) What does H<sub>2</sub> L<sub>2</sub>, in an antibody represent?

39. (a) Explain the process of preparation of competent host for transformation with recombinant DNA.  
 (b) Refer to the given diagram of pBR322 and answer the question that follows



- (i) Mention the restriction enzymes that can be used for insertional inactivation of antibiotic resistant genes  
 (ii) How many cloning sites are present in the given pBR322?
40. Genetically modified plants have been developed through core techniques of biotechnology. How are these genetically modified plants useful to humans
41. (a) Write an equation to calculate the population density at the time 't'.  
 (b) Population density fluctuates due to change in four basic processes. Mention and define these four basic processes.

**PART-E**

VI. Answer any ONE of the following questions in about 200–250 words each wherever applicable:

1x 5 = 5

42. (a) Complete the given tabular column with respect to male and female gametophyte of angiosperms for the mentioned character

Character	Mature Male gametophyte	Mature female gametophyte
i) Number of cells present in		
ii) Number of gametes present in		
iii) Type of cell division involved in the development of		
iv) Ploidy of the cells of		

- (b) Which advantage offered by seeds help angiosperms to adapt to changing environmental conditions?

43. Mendelian disorders may be autosomal or sex-linked, dominant or recessive, homozygous or heterozygous. Pedigree symbols are used to analyze these disorders in human population. Mention the genotypes for the following pedigree symbols.
- (a) Autosomal dominant – 
  - (b) Autosomal recessive – 
  - (c) Sex – linked dominant – 
  - (d) Sex – linked recessive –  
44. Justify the below given statement:
- (a) “RNA polymerase cannot transcribe a gene by itself”.
  - (b) “Transcription and translation are separated by site and not coupled in eukaryotes”.
  - (c) Which RNA polymerase enzyme involved in the transcription of 5s rRNA.



  
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