

# MHT-CET 2021 Question Paper

25<sup>th</sup> September 2021

1. Sometimes a pregnant woman is injected with \_\_\_\_\_ hormone to hasten parturition.  
(A) FSH (B) thyroxine  
(C) oxytocin (D) glucagon
2. In brood parasitism \_\_\_\_\_.  
(A) the eggs after being laid in hosts nest are incubated by parent bird.  
(B) the eggs of host bird are destroyed.  
(C) the parasites egg hatch after the hosts egg.  
(D) the eggs of one bird are laid in another birds nest who incubates them.
3. The patent titled "Control of plant gene expression" is based on a gene producing toxic protein that \_\_\_\_\_.  
(A) causes allergic reactions.  
(B) does not allow seeds to germinate.  
(C) has adverse effect on Monarch butterfly population.  
(D) develops resistance to herbicide.
4. Which one of the following is the substrate for the activity of restriction endonuclease enzyme?  
(A) Double stranded DNA at VNTR's only.  
(B) RNA primers used in PCR for gene amplification.  
(C) Single stranded DNA separated by denaturation.  
(D) Specific recognition sites of double stranded DNA.
5. The remnant of the embryonic aperture on the inter-auricular septum is called \_\_\_\_\_.  
(A) foramen ovalis  
(B) foramen of Monroe  
(C) foramen of Luschka  
(D) foramen of Magendie
6. Absciscic acid causes efflux of \_\_\_\_\_ ions from guard cells and brings about closure of stomata.  
(A)  $\text{Na}^+$  (B)  $\text{K}^+$   
(C)  $\text{Mg}^{++}$  (D)  $\text{H}^+$
7. A large increase in blood volume and pressure stimulates atrial wall to produce \_\_\_\_\_.  
(A) ANP (B) ACTH  
(C) RAAS (D) ADH
8. All living beings have equal right to survive irrespective of their known or prospective economic use. "This is \_\_\_\_\_ reason for conservation of biodiversity."  
(A) constitutional (B) broad utilitarian  
(C) narrowly utilitarian (D) ethical
9. If a person has blood group 'A', then antigen A will be present, \_\_\_\_\_.  
(A) in stroma of RBC  
(B) on plasma membrane of RBC  
(C) on plasma membrane of WBC  
(D) in plasma of blood
10. Which plant hormone increases rate of respiration?  
(A) Auxins (B) Ethylene  
(C) Gibberellins (D) Cytokinins
11. In angiosperms, the embryo sac is \_\_\_\_\_.  
(A) uninucleate (B) binucleate  
(C) multinucleate (D) enucleate
12. Which one of the following sets contain enzymes coded by structural gene of lac operon of *E.coli*?  
(A)  $\beta$  - galactosidase, phosphoglucose isomerase and transacetylase  
(B)  $\beta$  - galactosidase,  $\beta$  - galactoside permease and glycogen synthetase.  
(C)  $\beta$  - galactosidase,  $\beta$  - galactoside permease and transacetylase  
(D)  $\beta$  - galactosidase,  $\beta$  - galactoside permease and helicase.
13. During biogas formation which one of the following process is NOT involved in anaerobic digestion of slurry?  
(A) Methanogenesis (B) Acidogenesis  
(C) Photolysis (D) Hydrolysis
14. The specific site where the DNA is cut by REN's is called \_\_\_\_\_ site.  
(A) recognition (B) initiation  
(C) 'ori' (D) termination
15. Which one of the following is an arboreal ape?  
(A) Gorilla (B) Gibbon  
(C) Orangutan (D) Chimpanzee
16. Which one of the following cranial nerves does NOT innervate eye muscles?  
(A) Pathetic (B) Abducens  
(C) Hypoglossal (D) Oculomotor



17. Which one of the following is unlike other nuclei in the embryo sac of angiosperms regarding ploidy?  
 (A) Male gamete nucleus  
 (B) Egg nucleus  
 (C) Secondary nucleus  
 (D) Antipodal nucleus
18. Following are sex ratios obtained from a given area. Which one will show evolutionary stable strategy between males and females respectively?  
 (A) 1000 : 1000 (B) 1015 : 1000  
 (C) 1000 : 1015 (D) 1000 : 800
19. Number of NADH + H<sup>+</sup> molecules formed during acetylation from end product of glycolysis in aerobic respiration is \_\_\_\_\_.  
 (A) 2 (B) 3  
 (C) 6 (D) 8
20. III ventricle of human brain is connected posteriorly to IV ventricle through \_\_\_\_\_.  
 (A) foramen of Magendie  
 (B) duct of Bellini  
 (C) foramen of Monro  
 (D) duct of Sylvius
21. The substance upon which an enzyme acts is termed as \_\_\_\_\_.  
 (A) prosthetic group (B) exoenzyme  
 (C) endoenzyme (D) substrate
22. Given below are two statements with respect to Menstrual cycle.  
**Statement I:** Menstrual phase in menstrual cycle occurs when an ovulated egg does not fertilize and thus shed out along with the menstruum.  
**Statement II:** Menstrual phase is called, 'funeral of unfertilized egg'.  
 Choose the most appropriate answer from the options given below.  
 (A) Both Statement-I and Statement-II are correct  
 (B) Statement-I is correct but Statement-II is incorrect.  
 (C) Both Statement-I and Statement-II are incorrect.  
 (D) Statement-I is incorrect but Statement-II is correct.
23. The heterochromatin part of chromosome is \_\_\_\_\_ times more rich in DNA than euchromatin.  
 (A) 2 – 3 (B) 9 – 12  
 (C) 5 – 8 (D) 4 – 6
24. Which of the following does NOT contribute to the formation of thoracic cage?  
 (A) Diaphragm (B) Sternum  
 (C) Pleura (D) Ribs
25. Select the correct sequence of stage occurring in primary hydrarch succession.  
 (A) Free floating plants → submerged plants → trees → reed swamp stage  
 (B) Reed swamp stage → trees → submerged plants → free floating plants  
 (C) Submerged plants → free floating plants → reed swamp stage → trees  
 (D) Submerged plants → reed swamp stage → free floating plants → trees
26. Nucleic acid was first discovered from \_\_\_\_\_.  
 (A) red blood cells  
 (B) bacteriophages  
 (C) white blood cells  
 (D) *Streptococcus pneumoniae*
27. Rate of breathing in new born is about \_\_\_\_\_ times per minute.  
 (A) 44 (B) 12  
 (C) 16 (D) 20
28. Secondary succession takes place in / on \_\_\_\_\_.  
 (A) newly formed volcanic island.  
 (B) recently burnt or destroyed forest.  
 (C) newly created pond.  
 (D) bare rocky area
29. T-wave in normal ECG represents \_\_\_\_\_.  
 (A) atrial depolarization.  
 (B) ventricular depolarization.  
 (C) atrial repolarization  
 (D) ventricular repolarization
30. Choose the INCORRECT statement with respect to T.S. of Artery.  
 (A) Arterial lumen is devoid of valves.  
 (B) Angular margin around the lumen shows tessellations  
 (C) The outermost tunic externa is thick and tough layer of collagen fibers.  
 (D) Tunica media is thin and lumen is wide.
31. To provide energy for a metabolic process, ATP molecule undergoes \_\_\_\_\_.  
 (A) phosphorylation (B) hydrolysis  
 (C) oxidation (D) dehydrogenation
32. In which of the following plants male flower floats on the surface of water?  
 (A) *Potamogeton* (B) *Zostera*  
 (C) Water lily (D) *Vallisneria*
33. The cyanobacteria *Tolypothrix* is associated symbiotically with \_\_\_\_\_.  
 (A) Lichen (B) *Azolla*  
 (C) *Cycas* (D) Endomycorrhiza



34. Match the terms in Column-I with their explanation in Column-II.

	Column I		Column II
A.	Polycythemia	I.	Decrease in number of WBCs
B.	Erythrocytopenia	II.	Increase in number of RBCs
C.	Leukemia	III.	Decrease in number of RBCs
D.	Leucopenia	IV.	Uncontrolled increase in number of WBCs

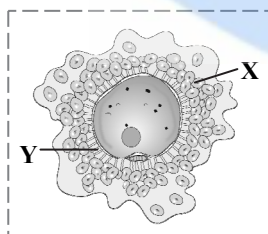
- (A) A – II B – III C-IV D – I  
(B) A – I B – II C – III D – IV  
(C) A – IV B - II C – I D – III  
(D) A - III B - IV C – II D – I

35. Match the following enzymes in Column-I with their source in Column-II.

	Column I		Column II
A.	Pectinase	I.	<i>Saccharomyces cerevisiae</i>
B.	Lipase	II.	<i>Aspergillus niger</i>
C.	Invertase	III.	<i>Trichoderma konigii</i>
D.	Cellulase	IV.	<i>Candida lipolytica</i>

- (A) A – II B – I C-IV D – III  
(B) A – II B – III C – I D – IV  
(C) A – II B - IV C – I D – III  
(D) A - IV B - III C – II D – I

36. Given below is a diagram of an unfertilized egg. Identify 'X' and 'Y' respectively.



- (A) vitelline membrane and zona pellucida  
(B) zona pellucida and vitelline membrane  
(C) perivitelline space and corona radiata  
(D) corona radiata and zona pellucida

37. Vasa recta refers to \_\_\_\_\_.  
(A) loop shaped capillary network around Henle's loop of juxtamedullary nephrons.  
(B) juxtaglomerular apparatus of nephrons.  
(C) neuronal circuit of hypothalamus,  
(D) vascular portion of pia mater of CNS.

38. Which one of the following is an example of milk sugar?  
(A) Lactose (B) Fructose  
(C) Sucrose (D) Maltose

39. Select the INCORRECT statement regarding transport of respiratory gases.

- (A)  $ppO_2$  of capillary blood is 40 mm Hg before oxygenation.  
(B) Alveolar membrane is equally permeable to oxygen and carbon dioxide.  
(C) Dissociation of oxyhaemoglobin into haemoglobin and oxygen is favored by low  $ppCO_2$ .  
(D)  $ppCO_2$  of alveolar air is 45 mm Hg.

40. In angiosperms, the embryo is developed at \_\_\_\_\_ of the embryo sac.

- (A) antipodal side (B) micropylar end  
(C) chalazal end (D) centre

41. Which one of the following is the decarboxylated compound formed during TCA cycle?

- (A) Citrate (B)  $\alpha$ -ketoglutarate  
(C) Isocitrate (D) Cis-aconitate

42. Which of the following is NOT a character of open circulation?

- (A) Blood flows with low pressure.  
(B) Respiratory pigment is usually absent.  
(C) Presence of blood capillaries.  
(D) Presence of haemocoel.

43. Match the following types of adaptations given in Column-I and their examples given in Column-II. Choose the correct answer from the options given below.

	Column-I		Column-II
A.	Morphological	I.	CAM plants
B.	Physiological	II.	Migration of birds
C.	Behavioural	III.	Leaves reduced to spines in opuntia

- (A) A – II, B – I, C – III  
(B) A – I, B – II, C – III  
(C) A – III, B – I, C – II  
(D) A – I, B – III, C – II

44. Identify the correct statement/s regarding unsaturated fatty acids.

- A. They have one or more double between the carbon atoms of hydrocarbon chains.  
B. Are generally solid at room temperature.  
C. Are generally liquid at room temperature.  
D. They do not have any double bonds between the carbon atoms of hydrocarbon chains.

- (A) Only A (B) Both A and C  
(C) Both A and B (D) A, B and C

45. The smallest WBC is \_\_\_\_\_.

- (A) basophil. (B) monocyte.  
(C) lymphocyte. (D) neutrophil.



46. Lac-operon is an example of which one of the following types of regulation of gene expression?  
 (A) Transcriptional level  
 (B) Translational level  
 (C) Regulation of splicing/ processing level  
 (D) Transport of mRNA from nucleus to cytoplasm
47. The Human Genome Project formally began in A and was completed in B.  
 (A) A – 1993                      B – 2000  
 (B) A – 1995                      B – 2005  
 (C) A – 1990                      B – 2003  
 (D) A – 1980                      B – 2001
48. During translation in protein synthesis, and codon bind by formation of \_\_\_\_\_ bond.  
 (A) peptide                      (B) glycosidic  
 (C) hydrogen                      (D) phosphodiester
49. Epstein-barr virus and Human papilloma virus cause \_\_\_\_\_.  
 (A) dermatophytosis                      (B) nasopharyngitis  
 (C) pneumonia                      (D) cancer
50. Species diversity is bountiful in the tropics near equator because of the following factors EXCEPT \_\_\_\_\_.  
 (A) higher annual rainfall.  
 (B) warmer temperature.  
 (C) intense sunlight.  
 (D) drastic seasonal climatic changes.
51. Symptoms such as intermittent pain below ribcage in the back and sideways, hazy, pinkish urine along with pain during micturition generally indicate \_\_\_\_\_.  
 (A) uremia                      (B) kidney stones  
 (C) diabetes mellitus                      (D) nephritis
52. How many copies of DNA will be produced in the thermal cyclor of PCR after 5 cycles?  
 (A) 64                      (B) 16  
 (C) 128                      (D) 32
53. Which one of the following is NOT a cause of diarrhea?  
 (A) Colitis  
 (B) Ulcer  
 (C) Inflammation of intestine  
 (D) Inadequate enzyme secretion
54. Given below are two statements regarding evolution.  
**Statement-I:** Selection against harmful mutation leads to a mutation balance.  
**Statement-II:** In mutation balance, the allele frequency of harmful recessives keep on changing generation after generation.  
 In the light of above statements, choose the most appropriate answer from the options given below:
- (A) Statement-I is correct but Statement-II is incorrect  
 (B) Both Statement-I and Statement-II are correct.  
 (C) Both Statement-I and Statement-II are incorrect.  
 (D) Statement-I is incorrect but Statement-II is correct.
55. Which one of the following is a hormone releasing IUD?  
 (A) LNG – 20                      (B) CuT  
 (C) Cu7                      (D) Multiload 375
56. With reference to the Mendelian experiments, which one of the following statements is INCORRECT?  
 (A) A factor has only one allele.  
 (B) Recessive allele is not expressed in the presence of an alternative allele.  
 (C) The alleles occupy identical loci on homologous chromosomes.  
 (D) Allele is an alternative form of a given gene.
57. Based on the statements regarding dialysis choose the correct answer from options given below.  
**Statement-I:** Dialysis is regarded as a 'holding measure' until a renal transplant is performed.  
**Statement-II:** Sometimes dialysis is not supportive measure in those for whom a transplant is inappropriate.  
 (A) Statement-I is incorrect but Statement-II is correct.  
 (B) Both Statement-I and Statement-II are correct.  
 (C) Both Statement-I and Statement-II are incorrect.  
 (D) Statement-I is correct but Statement-II is incorrect.
58. Select the mismatch pair with respect to hormones.  
 (A) Milk ejecting hormone – Oxytocin  
 (B) Sleep inducing hormone – Melatonin  
 (C) Salt retaining hormone – Thyroxine  
 (D) Emergency hormone – Adrenaline
59. During sewage treatment the activated sludge is present in \_\_\_\_\_.  
 (A) settling tank.  
 (B) aeration tank.  
 (C) sedimentation tank.  
 (D) grit chamber.
60. In Zea mays, color and shape of grain show \_\_\_\_\_ linkage.  
 (A) complete                      (B) complete sex  
 (C) incomplete                      (D) incomplete sex





61. Flame cell are also called A and they are found in animals like B .  
(A) A - Salt excreting glands, B - marine birds  
(B) A - Protonephridia, B - rotifers  
(C) A - metanephridia, B - Echinoderms  
(D) A - nephrons, B - Crustaceans
62. Polyembryony was first observed by Leeuwenhoek in the seeds of \_\_\_\_\_.  
(A) Citrus (B) Mango  
(C) Orchid (D) Papaya
63. Symptoms of malaria do NOT include \_\_\_\_\_.  
(A) sweating and shivering  
(B) arthralgia  
(C) conjunctivitis  
(D) fever with chills
64. India shares about \_\_\_\_\_% of total biodiversity wealth on earth.  
(A) 2.4 (B) 12 (C) 8.1 (D) 15
65. Given below are two statements with respect to counter current mechanism.  
**Statement-I:** Tissue fluid around descending limb of Henle's loop becomes concentrated, during counter current mechanism.  
**Statement-II:** Water moves out from descending limb of Henle's loop into tissue fluid by osmosis.  
In the light of above statements select the correct option from codes given below:  
(A) Both Statement-I and Statement-II are incorrect.  
(B) Both Statement-I and Statement-II are correct.  
(C) Statement-I is incorrect but Statement-II is correct.  
(D) Statement-I is correct but Statement-II is incorrect.
66. Generally the pigment bilirubin formed by breakdown of haemoglobin is excreted through \_\_\_\_\_.  
(A) faeces. (B) sebum.  
(C) sweat. (D) urine.
67. Following accessory ducts in human males are in pairs, EXCEPT \_\_\_\_\_.  
(A) epididymis (B) ejaculatory duct  
(C) vas deferens (D) urethra
68. How many of the following statements are true about angiosperms?  
A. The generative cell floats in the cytoplasm of vegetative cell.  
B. The stalk of ovule is called funiculus.  
C. Pollen grains are shed at two celled stage.  
D. Embryo sac is diploid.  
E. Megaspore mother cell towards chalazal end becomes functional.
- (A) A, B and C only (B) D and E only  
(C) A and B only (D) B and C only
69. Given below are two statements.  
**Statement-I:** In root hair outer layer of cell wall is composed of pectin.  
**Statement-II:** In root hair inner layer of cell wall is composed of cellulose.  
Choose the correct answer from the options given below with reference to structure of root hair.  
(A) Statement-I is correct but Statement-II is incorrect.  
(B) Statement-I is incorrect but Statement-II is correct  
(C) Both Statement-I and Statement-II are correct.  
(D) Both Statement-I and Statement-II are incorrect.
70. Which one of the following hormone is produced by  $\beta$ -cells of islets of Langerhans of pancreas?  
(A) Oxytocin (B) Insulin  
(C) Glucagon (D) Vasopressin
71. Anaerobic process after glycolysis, during lactic acid formation is called \_\_\_\_\_.  
(A) Fermentation (B) Citric acid cycle  
(C) HSK pathway (D) Calvin cycle
72. Given below are two statements.  
**Statement-I:** Enzyme pyruvate dehydrogenase is present in mitochondria of eukaryotes.  
**Statement-II:** Enzyme pyruvate dehydrogenase is present in cytoplasm of prokaryotes.  
In the light of the above statements choose the correct answer from the options given below.  
(A) Both Statement-I and Statement-II are incorrect.  
(B) Statement-I is incorrect but Statement-II is correct.  
(C) Both Statement-I and Statement-II are correct.  
(D) Statement-I is correct but Statement-II is incorrect.
73. Fishes have \_\_\_\_\_ for respiration  
(A) external gills (B) internal gills  
(C) book gills (D) book lungs
74. In neural system, chemical synapse shows synaptic gap of about \_\_\_\_\_.  
(A) 400 nm to 60 nm (B) 80 nm to 100 nm  
(C) 20 nm to 40 nm (D) 60 nm to 80 nm
75. Following are infection sites for syphilis, EXCEPT \_\_\_\_\_.  
(A) conjunctiva of eye.  
(B) oral mucous membrane.  
(C) mucous membrane in genital region.  
(D) mucous membrane in rectum.



76. Following are the functions of cerebrospinal fluid EXCEPT \_\_\_\_\_.  
 (A) Acts as shock absorber.  
 (B) Maintenance of constant pressure.  
 (C) Helps in binding the neurotransmitter to receptor.  
 (D) Exchange of nutrients and waste.
77. Formation of oogonia in human females is completed in \_\_\_\_\_.  
 (A) embryonic stage.  
 (B) puberty.  
 (C) at the time of birth.  
 (D) proliferative phase of menstruation
78. Match different cells of Islets of Langerhans in Column-I with their role in Column-II. Select the correct answer from the options given below.

	Column-I		Column-II
A.	Alpha cells	I.	Stimulates muscles for glycogenesis.
B.	Beta cells	II.	Decreases gastric secretions and absorption in digestive tract.
C.	Delta cells	III.	Inhibits the release of pancreatic juice.
D.	F cells	IV.	Stimulates liver for glucogenolysis.

- (A) A – III, B – II, C – IV, D – I  
 (B) A – I, B – IV, C – III, D – II  
 (C) A – II, B – III, C – I, D – IV  
 (D) A – IV, B – I, C – II, D – III

79. How many phenotypes can be obtained if a pea plant (RrTt) is crossed with another pea plant with the same genotype?  
 (A) 4 (B) 9 (C) 12 (D) 16
80. The \_\_\_\_\_ is regarded as an inborn metabolic disorder.  
 (A) sickle cell anemia (B) Thalassemia  
 (C) Window's peak (D) phenylketonuria
81. Which one of the following restriction enzyme has recognition sequence of 4 nucleotides and makes blunt end in the DNA?  
 (A) Hind II (B) Bam H I  
 (C) Alu I (D) Eco RI
82. Complete the following about the absence of clotting factors. Haemophilia A: \_\_\_\_\_ x \_\_\_\_\_ :  
 Haemophilia B: \_\_\_\_\_ y \_\_\_\_\_ .  
 (A) x – IX y – VIII  
 (B) x – X y – IX  
 (C) x – VIII y – IX  
 (D) x – IX y – X

83. Which one of the following gland is NOT present in human females?  
 (A) Bartholin's glands  
 (B) Endometrial glands  
 (C) Bulbourethral glands  
 (D) Mammary glands
84. Which one of the following statements is INCORRECT about angiospermic seed/fruit?  
 (A) The micropyle of the ovule persists in the seed.  
 (B) Coconut is a non-endospermic seed.  
 (C) Coconut is a fleshy fruit.  
 (D) Fruit development is triggered by hormones produced by developing seeds.
85. 'Bt' cotton contains the gene of a \_\_\_\_\_.  
 (A) bacterium. (B) nematode.  
 (C) protozoan. (D) virus.
86. Which one of the following is NOT a psychological disorder?  
 (A) Anxiety disorder  
 (B) Autism spectrum disorder  
 (C) Bipolar disorder  
 (D) Pulmonary disorder
87. Which one of the following is NOT correct regarding vaccines?  
 (A) It is used to control diseases like measles, polio etc.  
 (B) It is antigenic protection against particular pathogen.  
 (C) It teaches immune system to recognize and eliminate the pathogenic organism.  
 (D) It is introduction of antibodies into animal body.
88. Which one of the following is NOT a derivative of cholesterol?  
 (A) Vitamin D (B) Progesterone  
 (C) Testosterone (D) Diosgenin
89. Which one of the following is a chromosomal disorder?  
 (A) Sickle cell anaemia  
 (B) Phenylketonuria  
 (C) Colorblindness  
 (D) Turner's syndrome
90. Heterostyly is a contrivance for \_\_\_\_\_.  
 (A) geitonogamy only  
 (B) autogamy only  
 (C) xenogamy only  
 (D) geitonogamy and xenogamy
91. A heterozygous tall pea plant was crossed with a dwarf pea plant. The progeny of cross shows \_\_\_\_\_.  
 (A) 1 Tall : 1 dwarf (B) 3 Tall : 1 dwarf  
 (C) 1 Tall : 3 dwarf (D) 4 Tall : 2 dwarf



92. In the genome of mouse, the estimated number of genes is \_\_\_\_\_.  
(A) 33,000 (B) 19,000  
(C) 13,000 (D) 25,000
93. What is ubiquinol?  
(A) Oxidized ubiquinone  
(B) Co enzyme Q  
(C) Ubiquinone  
(D) Reduced ubiquinone
94. In which zone / region root hairs occur?  
(A) Zone of elongation  
(B) Zone of maturation  
(C) Meristematic region  
(D) Zone of absorption
95. In the ecological hierarchy the basic unit is \_\_\_\_\_.  
(A) biome.  
(B) community.  
(C) individual organism.  
(D) population.
96. The fossil of which one of the following has been found in Ethiopia as well as Tanzania?  
(A) *Homo erectus*  
(B) *Australopithecus*  
(C) *Ramapithecus*  
(D) *Drypithecus*
97. At the end of replication, the contribution of nucleotides from mother DNA is \_\_\_\_\_ percent.  
(A) 75 (B) 25 (C) 100 (D) 50
98. With respect to derivatives of germinal layers in human beings, complete the analogy.  
Ectoderm : Sweat glands :: Endoderm : \_\_\_\_\_.  
(A) Mammary glands (B) Salivary glands  
(C) Thyroid glands (D) Pineal glands
99. In Platyhelminthes and rotifers the excretory organs are \_\_\_\_\_.  
(A) flame cells.  
(B) green glands.  
(C) nephridia.  
(D) Malpighian tubules.
100. The spiral configuration of  $\alpha$ -helix and  $\beta$ -helix of polypeptide chains are held together by \_\_\_\_\_ bonds to form secondary structure of protein.  
(A) phosphodiester (B) hydrogen  
(C) peptide (D) disulphide