Chapter 10

Kingdom Animalia

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- Important Short Answers
- Exercise MCQ's
- Important additional MCQ's
- Past MDCAT MCQ's

Exercise MCQ's

❖ **Encircle the correct answer from the multiple choices.**

1) **In animals the bodies of which can be divided in two equal halves:**
   a) Asymmetrical b) Bilaterally symmetrical c) Radially symmetrical
2) **Animals that have their body cavity filled with parenchyma are:**
   a) Acoelomate b) Coelomate c) Pseudocoelomates
3) **The vertebrates in which placenta is formed during the development of fetus are**:
   a) Pisces b) Aves c) Mammals
4) **In amphibians the necessary requirements to spend their life history are:**
   a) Land b) Water c) Both
5) **Trypanosoma causes the diseases:**
   a) Malaria b) Sleeping sickness c) Cancer
6) **In annelids the organs for the execration are:**
   a) Flame cells b) Nephridia c) Kidneys
7) **In arthropods the body cavity is:**
   a) Pseudocoelom b) Coelomate c) Haemocoel
8) **In Mollusca the foot is used for:**
   a) Capturing prey b) Locomotion c) Both
9) **Vertebrates that develop embryonic membranes around their embryo are called:**
   a) Amniotes b) Anamniotes c) Both

Answer Key:

1	B	**2**	a	**3**	c	**4**	c	**5**	b
6	B	**7**	c	**8**	b	**9**	a		

Additional Important MCQ's

❖ **Encircle the correct answer from the multiple choices.**

Kingdom Animalia, Classification

1) Virtually biologists agree that animals evolved from:

a) Monerans b) Protoctista c) Algae d) Fungi

2) In animals bodies can be divided into equal halves in one plane is called:

a) Asymmetrical b) Bilateral c) Radial d) None

3) Animals that have their body cavity filled with parenchyma are:

a) Acoelomates
b) Coelomates
c) Pseducoelomates
d) Mesoderm

4) The animals which do not have body cavity have been grouped under:

a) Pseducoelomates
b) Coelomata
c) Acoelomata
d) Chordata

5) Pseducoeolomate is present in:

a) Cnidaria b) Flat worms c) Round worms d) Earthworms

6) Pseducoelom is a characteristics feature of which phylum:

a) Aschelminthes (Nematoda)
b) Annelida
c) Mollusca
d) Porifera

7) In animals reproductive system develops from:

a) Endoderm b) Mesoderm c) Ectoderm d) None

8) Integumentary and nervous system developed from:

a) Endoderm b) Mesoderm c) Ectoderm d) None

9) During development, in an animal, mesoderm layer gives rise to:

a) Nervous system
b) Alimentary canal lining
c) Muscular and skeletal system
d) Mouth

10) Which in not included in proterostomia?

a) Arthropoda b) Mollusca c) Annelida d) Echinodermata

11) In protostomes, the blastopore forms:

a) Anus
b) Brain
c) Excretory pore
d) Mouth

12) The cleavage in which the lines or planes of cleavage are asymmetrical between poles:

a) Radial and determinate
b) Spiral and determinate
c) Radial and intermediate
d) Spiral and pre-determinate

Phylum Porifera/Parazoa

13) The inner layer of the sponges is called:

a) Pinacoderm
b) Choanoderm
c) Endoderm
d) Epidermis

14) In most sponges the outer layer of body wall is made up of cells called:

a) Coenocytes b) Pinacoderm c) Choanoderm d) Pinacocytes

15) The skeleton of sponges in the form of variously shaped needle like structures called:

a) Spicules b) Gemmules c) Tentacles d) Corals

16) The pores by which water leaves the body of sponges are called:

a) Osculum b) Ostia c) Mouth d) Pinacocytes

17) The pore by which the water leaves the body of sponges are called:

a) Ostia b) Mouth c) Anus d) Osculum

18) The asexual reproduction in sponges occurs by:

a) Fragmentation b) Multiple fission c) Binary fission d) Budding

19) The sponges which belong to phylum porifera have:

a) Maximum capacity to regenerate
b) Very little capacity to regenerate
c) Moderate capacity to regenerate
d) No regeneration capacity

20) Venus Flower Basket is also called:

a) Sycon b) Leucosolenia c) Euplectella d) Spongilla

21) Example of beautiful and delicate sponge called Venus Flower Basket is:

a) Sycon b) Leucosolenia c) Euplectella d) Spongilla

22) Fresh water sponge is:

a) Sycon b) Leucosolenia c) Euplectella d) Spongilla

23) Branched tube like sponge is:

a) Sycon b) Leucosolenia c) Euplectella d) Spongilla

24) The largest sponge that is meter tall and found in Antarctica is:

a) Scolymastra joubuni b) Leucosolenia c) Euplectella d) Spongilla

25) The common marine sponges:

a) Sycon b) Leucosolenia c) Euplectella d) Spongilla

Phylum Cnidaria/Coelentrata

26) Hydra belongs to phylum:

a) Mollusca b) Cnidaria c) Annelida d) Arthropoda

27) Which of the following is a motile coelenterate:

a) Hydra b) Obelia colony c) Jelly fish d) Coral

28) In phylum coelenterate special cells cnidocytes give rise to:

a) Polyps b) Gastrozoids c) Nematocysts d) Gemmules

29) Corals (Madrepore) produce hard exoskeleton made up of:

a) $NaCO_3$ b) NaOH c) $CaCO_3$ d) $Ca(OH)_2$

30) Hydra belongs to phylum:

a) Porifera
b) Platyhelminthus
c) Coelenterates
d) Annelida

31) Sea anemone belongs to phylum:

a) Porifera
b) Platyhelminthus
c) Coelenterates
d) Annelida

32) Polyps and Medusae are found in:

a) Porifera
b) Platyhelminthus
c) Coelenterates
d) Annelida

33) Polymorphism is the characteristics of members of phylum:

a) Porifera b) Coelenterates c) Annelida d) Arthropoda

34) Polyp is reduced and medusa is dominant:

a) Sea anemone b) Jelly fish c) Obelia d) Hydra

35) The animals that only exist in polyp form is:

a) Obelia b) Jelly fish c) Physalia d) Hydra

Phylum Platyhelminthes

36) The excretory system of Flatworms is composed of:

a) Nephron b) Nephridia c) Flame cells d) Ganglia

37) Flame cells are excretory cells in:

a) Flatworms
b) Segmented worms
c) Round worms
d) Pinworms

38) Excretory system of flatworms is composed of:

a) Nephron b) Nephridia c) Ganglia d) Flame cells

39) Liver flukes and tape worms belong to phylum:

a) Porifera
b) Platyhelminthus
c) Coelenterates
d) Annelida

40) Fasciola is the name given to:

a) Tapeworm b) Liver fluke c) Planaria d) Earthworm

41) Primary host of tape worm (Taenia) is:

a) Man b) Cattle c) Sheep d) Snail

42) Which animal of Phylum Coelenteratea known as Portuguese man of war?

a) Hydra b) Obelia c) Actinia d) Physalia

43) Schistosoma is commonly called:

a) Liver fluke b) Tape worm c) Planaria d) Blood fluke

44) Which one of the following does not belong to phylum Platyhelminthes?

a) Dugesia b) Taenia c) Fasciola d) Crab

45) The platyhelminthes liver fluke is:

a) Ectoparasite in humans
b) Blood parasite
c) Practice of respiratory tract
d) Parasite in bile duct

Phylum Aschelminthes/Nematoda

46) The body cavity of Nematoda is:

a) Blastocoel
b) Pseudocoelom
c) Haemocoelom
d) Coelom

47) Pseudocoelom is the characteristic feature of the phlylum:

a) Nematoda
b) Echinodermeta
c) Mollusca
d) Annelida

48) Round worms are:

a) Acoelomates
b) Pseducoelomates
c) Coelomates
d) None of them

49) Ascaris lumbricoides is an intestinal parasite of:

a) Monkey b) Horse c) Camel d) Man

50) Ascaris is:

a) Diploblastic b) Maptoic c) Triploblastic d) Acoelomate

51) Common name for ancyclostoma duodenale is:

a) Hook worm b) Pin worm c) Tape worm d) Earthworm

52) Common name for Enterobius Vermicularis is:

a) Hook worm b) Earth worm c) Pin worm d) Tapeworm

53) Pin worm belongs to phylum:

a) Platyhelminthes b) Aschelminthes c) Annelida d) Arthropoda

54) Enterobius Vermicularis is commonly called:

a) Shipworm b) Hookworm c) Tape worms d) Pin worms

Phylum Annelida

55) Matamerically segmented animals belong to:

a) Echinodermata b) Cnidaria c) Mollusca d) Annelida

56) In annelids excretion takes place by special structure called:

a) Kidney
b) Malpighian tubule
c) Flame cells
d) Nephridia

57) Excretory structure in annelid are:

a) Nephron
b) Malpighian tubule
c) Flame cells
d) Nephridia

58) Nephridia are excretory structure of:

a) Sponges b) Annelids c) Arthropoda d) None of these

59) The animal having both male and female reproductive organs in same individuals is called:

a) Fraternal twins
b) Hermaphrodite
c) Gonadomorph
d) Hybrids

60) A free swimming trochophore larvae is produced during the life cycle of:

a) Arthropoda b) Porifera c) Coelenterate d) Annelida

61) Polychaeta is a class of phylum annelid which is commonly called:

a) Nereis
b) Lumbricus terristeris
c) Pheretima posthuma
d) Hirudo medicinalis

62) Nereis belong to phylum:

a) Sponges b) Annelids c) Arthropoda d) Nematoda

63) Nereis belong to class:

a) Polychaeta b) Oligochaeta c) Hirudinea d) Crustacea

Phylum Mollusca

64) The second largest phylum of invertebrates is:

a) Annelida
b) Mollusca
c) Echinodermeta
d) Platyhelminthus

65) A rasping tongue like radula provided with horny teeth in mouth cavity of many:

a) Molluscs b) Echinoderms c) Annelids d) Chordates

66) In molluscus a blue colored respiratory pigment its:

a) Haemoglobin
b) Haemoerthyrin
c) Haemocyanin
d) Prothrombin

67) Respiratory pigment present in the molluscs is called:

a) Haemoglobin b) Myoglobin c) Globin d) Haemocyanin

68) The color of the blood of mulluscus is:

a) Red b) White c) Green d) Blue

69) Blue color respiratory pigment called Haemocyanin is present in:

a) Arthropoda
b) Echinodermata
c) Annelids
d) Mollusca

70) Larva of Molluscus and Annelids:

a) Radula b) Plannula c) Trochophore d) Gemmules

71) Garden snail belongs to:

a) Gastropoda b) Cephalopoda c) Pelecypoda d) Arthropoda

72) Which of the following damages wooden ships?

a) Sepia b) Teredo c) Limax d) Ostrich

73) The largest invertebrate animals is:

a) Octopus b) Squid c) Anodonta d) Oyster

74) The animal with exceptionally large brain is:

a) Octopus b) Squid c) Anodonta d) Oyster

75) Sepia belong to:

a) Cephalopoda b) Myriapoda c) Gastropoda d) Pisces

76) Loligo is an animal of phylum Molluscs, which is commonly called:

a) Slug b) Garden snail c) Oyster d) Squid

Phylum Arthropoda

77) Joined appendages are found in phylum:

a) Mollusca b) Annelida c) Arthropoda d) All

78) The chemical found in external skeleton of arthropods is:

a) Cutin b) Suberin c) Chitin d) Lignin

79) The excretory organ is phylum Arthropoda is:

a) Nephrons
b) Malpighian tubules
c) Flame cells
d) Nephridia

80) Blood of arthropods is:

a) Green color b) Red color c) Brown color d) Colorless

81) Blood of the arthropods is colorless as it is without:

a) Chlorophyll b) Haemocyanin c) Haemoglobin d) Haemoerythrin

82) Aquatic arthropods respire through:

a) Lungs b) Skin c) Gills d) Spiracles

83) Number of legs in arachnids is:

a) 2 b) 4 c) 6 d) 8

84) Name the class without antenna:

a) Arachnida b) Insecta c) Myriapoda d) Crustacea

85) Which is the largest group not only of Arthropoda but of all the animal kingdom:

a) Class Myriapoda b) Arachnida c) Class insect d) Crustacea

86) Most spiders have…… eyes:

a) 2 b) 4 c) 6 d) 8

87) …….. has eight eyes:

a) Lamprey b) Snake c) Bat d) Spider

88) Hepatitis and cholera is spread by:

a) Trypanosoma b) Fleas c) Tse-Tse fly d) House fly

89) Which of the following is of economic importance to man:

a) Daphnia b) Silkworm c) Millipede d) Scorpion

Phylum Echinodermata

90) The spiny skinned animals are in included in:

a) Porifera
b) Echinodermata
c) Annelids
d) Molluscs

91) The phylum which is exclusively marine is:

a) Mollucss
b) Echinodermata
c) Annelids
d) Chordates

92) Madreporite is related to:

a) Annelid
b) Echinodermata
c) Birds
d) Molluscs

93) Animals of which phylum have developed bilateral symmetry in their larvae and radial symmetry in their adults:

a) Nematoda b) Annelida c) Molluscss d) Echinodermata

94) Sea anemone belongs to phylum:

a) Porifera
b) Platyhelminthes
c) Coelenterates
d) Echinodermata

95) The larva found in echinoderms is:

a) Trochophore b) Valiger c) Bipinnaria d) Planaria

96) Bipinnaria and brachiolaria are larvae of phylum:

a) Molluscs b) Echinoderms c) Annelids d) Chordates

Phylum Hemichordata

97) Balanoglossus and Saccoglossus one common examples of phylum:

a) Hemichordate
b) Echinodermata
c) Mollusca
d) Annelida

98) The example of phylum Hemicordata is:

a) Molgula b) Amphioxus c) Asterias d) Balanonglossus

Phylum Chordata

99) The presence of notochord is the character of:

a) Arthropoda b) Mollusca c) Nematoda d) Chordates

100) Which of the following is not a sub phylum of chordate?

a) Urochordata
b) Hemichordata
c) Cephalochordata
d) Vertebrata

Acrania

101) Which one of the following is included in tunicates:

a) Amphioxus b) Saccoglossus c) Balanoglossus d) Molgula

Craniata/Vartebrata
Superclass Pisces

102) Cyclostomata includes most primitive living vertebrates which have without:

a) Auricles
b) Cartilaginous skeleton
c) Jaws
d) Paired gills

103) Name the vertebrates which are without jaws:

a) Osteichthyes
b) Chondrichthyes
c) Cyclostoma
d) None of these

104) The cartilaginous fishes contain scales:

a) Placoid b) Cycloid c) Ganoid d) Ctenoid

105) Sharks and rays are included in cells:

a) Cyclostoma b) Osteichthyes c) Terapoda d) Chondrichthyes

106) Shark liver oil is extracted and is used in medicine a source of:

a) B b) A c) D d) A and D

107) One of the following is a fossil fish:

a) Dipnoi b) Varanope c) Cotylosaurs d) Archaeopteryx

108) Fish show modification of aquatic breathing system to meet the conditions of terrestrial life by developing lungs:

a) Hag fish b) Dog fish c) Dipnoi d) Shark

Superclass Terapoda

109) The animals which are on the border line between aquatic and true terrestrial; animals belong to class:

a) Reptiles b) Mammalian c) Amphibians d) Porifera

110) Which one of the following is not included in amniota?

a) Mammals b) Reptiles c) Amphibians d) Aves

111) Sphenodon is found in:

a) Australia b) Texas c) New Zealand d) Berlin

112) Slow worms belong to:

a) Nematoda b) Reptiles c) Annelida d) Platyhelminthes

113) The earliest fossil bird is:

a) Cotylosaurs
b) Archaeopteryx
c) Dinasaur
d) None

114) In birds, the organ of voice is called:

a) Larynx b) Syrinx c) Vocal cord d) Voice box

115) The skeleton of birds is light due to:

a) Air spaces
b) Air chambers
c) Air sacs
d) Extension of lungs

116) The hind limbs of the birds is modified for:

a) Running b) Walking c) Flying d) Perching

117) Mammals become dominant in which period?

a) Cenozoic b) Jurassic c) Devonian d) 0rdovician

118) It is universally accepted that mammals have evolved from reptilian ancestors called:

a) Cotylosaurs b) Dinasaurs c) Cyclostoma d) Amphibians

119) One of these is an early reptiles:

a) Varanope b) Platypus c) Archaeopteryxd) Snake

120) Which is the sequence of bones in the mammalian ears:

a) Incus and Stapes
b) Malleus, Incus and Stapes
c) Stapes and Malleus
d) Malleus and Stapes

121) Prototheria are commonly called:

a) Egg laying mammals
b) Pouched mammals
c) Placental mammals
d) None of these

122) The scales of pangolin are actually:

a) Modified rings
b) Modified hairs
c) Spines
d) Modified feather

123) The pouched mammals are:

a) Prototheria b) Metatheria c) Eutheria d) None

124) The one that is mammals:

a) Kangaroo b) Kiwi c) Frog d) Snake

125) The Marsupium is the characteristics feature of all except:

a) Dolphin b) Kangaroo c) Echidna d) Opossum

126) The kangroo belongs to the subclass:

a) Prototheria b) Metatheria c) Eutheria d) None

127) Example of a placental marsupial is:

a) Porcupine b) Bat c) Kangaroo d) None

128) Which of the following are called placental mammals?

a) Prototheria b) Metatheria c) Eutheria d) All of these

129) Which of the following is a placental mammal?

a) Platypus b) Bat c) Kangaroo d) Opossum

130) The sub class that has not primitive mammals are:

a) Prototheria b) Metatheria c) Eutheria d) None

131) Example of placenta mammals is:

a) Dolphin b) Kangaroo c) Echidna d) Opossum

Answer key: pakcity.org

1	b	**2**	b	**3**	a	**4**	c	**5**	c	**6**	a	**7**	b	**8**	c	**9**	c	**10**	d
11	d	**12**	b	**13**	b	**14**	d	**15**	a	**16**	b	**17**	d	**18**	d	**19**	a	**20**	c
21	c	**22**	d	**23**	b	**24**	a	**25**	a	**26**	b	**27**	c	**28**	c	**29**	c	**30**	c
31	c	**32**	c	**33**	b	**34**	b	**35**	d	**36**	c	**37**	a	**38**	d	**39**	b	**40**	b
41	a	**42**	d	**43**	d	**44**	d	**45**	d	**46**	b	**47**	a	**48**	b	**49**	d	**50**	c
51	a	**52**	c	**53**	b	**54**	d	**55**	d	**56**	d	**57**	d	**58**	b	**59**	b	**60**	c
61	a	**62**	b	**63**	a	**64**	b	**65**	a	**66**	c	**67**	d	**68**	d	**69**	d	**70**	c
71	a	**72**	b	**73**	b	**74**	a	**75**	a	**76**	d	**77**	c	**78**	c	**79**	b	**80**	d
81	c	**82**	c	**83**	d	**84**	a	**85**	c	**86**	d	**87**	d	**88**	d	**89**	b	**90**	b
91	b	**92**	b	**93**	c	**94**	d	**95**	c	**96**	b	**97**	a	**98**	d	**99**	d	**100**	b
101	d	**102**	c	**103**	c	**104**	a	**105**	d	**106**	d	**107**	a	**108**	c	**109**	c	**110**	c
111	c	**112**	b	**113**	b	**114**	b	**115**	a	**116**	d	**117**	a	**118**	a	**119**	a	**120**	b
121	a	**122**	d	**123**	b	**124**	a	**125**	a	**126**	b	**127**	c	**128**	c	**129**	b	**130**	c
131	a																		

Prof. Ijaz Ahmed Khan Abbasi (Lecturer Biology PGC)

Past MDCAT MCQ's

❖ **Encircle the correct answer from the multiple choices.**

2008

1) **Sharks and rays are included in class:**
   a) Cyclostomata b) Osteichthyes c) Chondrichthyes d) Tetrapoda
2) **In moths' male is _____**
   a) Heterogametic b) Homogametic c) Dieogametic d) Both B and C
3) **Which of the following are called placental mammals?**
   a) Prototheria b) Metatheria c) Eutheria d) All of these
4) **Name the class without antennae:**
   a) Arachnida b) Insecta c) Myriapoda d) Crustacea
5) **Which of the following do not have a body cavity?**
   a) Pseudocoelomata b) Coelomata c) Acoelomata d) None of these

2009

6) **A large group of parasitic protozoa, some of which causes various diseases such as malaria to humans, are:**
   a) Aschelminthes
   b) Annelida
   c) Platyhelminthes
   d) Arthropods
7) **It is an endoparasite of humans, cattle and pig that completes its life cycle in two hosts:**
   a) Tapeworm b) Liver fluke c) Aurelia d) Planaria
8) **Tse-tse fly causes the sleeping sickness and skin diseases by transmitting:**
   a) Plasmodium b) Anopheles c) Trypanosoma d) Insects
9) **Coelem is a cavity lined by:**
   a) Mesoderm b) Epiderm c) Endoderm d) Ectoderm

2010

10) **Book lungs are present in arthropods for exchange of gases in class:**
    a) Crustacea b) Myriapoda c) Insecta d) Arachnida
11) **Larvae of which group are similar to chordates?**
    a) Echinodermata b) Arthropoda c) Annelida d) Nematoda

2011

12) **Body cavity of round worms is called:**
    a) Pseudocoelom b) Acoelom c) Coelom d) Enteron
13) **Fasciola is endoparasite of:**
    a) Colon b) Liver c) Small Intestine d) Bile Duct

14) Trypanosoma is transmitted in human beings by:

a) Plasmodium b) House Fly c) Anopheles d) Tsetse Fly

15) The nervous system develops from which of the following layer during embryonic development of animals:

a) Mesoderm
b) Endoderm
c) Ectoderm
d) Mesoderm and Endoderm

16) Endosperm is formed as a result of:

a) Pollination
b) Double Fertilization
c) Self-Pollination
d) Cross Pollination

2012

17) The male reproductive parts of the flower are called:

a) Gynoecium b) Androecium c) Calyx d) Corolla

18) Fasciola is the name given to:

a) Tapeworm b) Liver fluke c) Planaria d) Earthworm

19) Ascaris is:

a) Diploblastic b) Haploid c) Triploblastic d) Acoelomate

20) During development, in an animal, mesoderm layer gives rise to:

a) Nervous System
b) Muscular and skeletal system
c) Alimentary canal lining
d) Mouth

21) Polymorphism is characteristic feature of:

a) Porifera b) Annelida c) Cnidaria d) Nematodes

2013

22) When beef which is not properly cooked is consumed by humans, they become infected by:

a) Tape worm b) Pin worm c) Hook worm d) Round worm

23) Sleeping sickness in humans is caused by:

a) Trypanosoma b) Anopheles c) Plasmodium d) Andes

24) Schistosoma is a parasite that lives in the…….of the host.

a) Intestine b) Liver c) Kidney d) Blood

25) The cavity between body wall and alimentary canal is:

a) Coelom b) Endoderm c) Mesoderm d) Mesoglea

26) The layer which forms the lining of digestive tract and glands of digestive system is:

a) Ectoderm b) Endoderm c) Mesoderm d) Mesoglea

2014

27) Ascaris is which one of the following?

a) Ectoparasite
b) Respiratory tract parasite
c) Intestinal parasite
d) Urinogenital tract parasite

28) Polymorphism is a feature exhibited by members of:

a) Coelenterates b) Porifera c) Arthropoda d) Platyhelminthes

29) Which one of the following is the primary host of liver fluke?

a) Man b) Snail c) Sheep d) Dog

30) Which one of the following is an example of a free living carnivorous flatworm?

a) Liver fluke b) Tapeworm c) Dugesia d) Schistosoma

31) The sources of staple food for man are plants which belong to the family:

a) Mimosaceae b) Rosaceae c) Poaceae d) Fabaceae

2015

32) ……is a triploblastic organism:

a) Jelly Fish b) Tapeworm c) Sea Anemone d) Corals

33) In arthropods, the body cavity is in the form of:

a) Coelom b) Psedocoelom c) Haemocoel d) Enteron

34) ……is a good example of polymorphism:

a) Hydra b) Obelia c) Starfish d) Equplectella

35) Name common gut roundworm parasite of human and pigs:

a) Aascaris lumberocoides
b) Pheretima posthuma
c) Lumbericus terresaris
d) Hirudo Medicinalis

36) ……is also called liver fluke:

a) Dugesia b) Fasciola c) Taenia d) Coral

2016

37) Taenia is an endoparasite of human, pig and cattle which belongs to phylum:

a) Cnidaria
b) Annelida
c) Aschelminthes
d) Platyhelminthes

38) Body of …… consists of segments called proglottis which contains mainly sex organs:

a) Planaria b) Fasciola c) Ascaris d) Tapeworm

39) .....is a common parasite of the intestine of human and pig which belongs to phylum nematode.

a) Taenia solanum
b) Ascaris lumbriocoides
c) Schistosoma
d) Fasciola hepatica

40) In radial symmetry all body parts are arranged around the central axis. Radial symmetry represents ..... mode of life:

a) Sessile b) Active c) Streamlined d) Parasitic

41) Pseudo-coelomates have a body cavity but it is not true coelom. Which one of the following is included in the group:

a) Planaria b) Earthworm c) Tapeworm d) Ascaris

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42) Chitin,a chemical found in exoskeleton of arthropods is also found in cell wall of:

a) Bacteria b) Cyanobacteria c) Fungi d) Algae

43) Snails are the intermediate hosts in:

a) Fasciolahepatica
b) Schistoma
c) Taeniasolium
d) Ancyclosomaduodenale

44) .....is an intestinal parasite of man belonging to phylum nematoda:

a) Taeniasolium
b) Ascarialumbricoides
c) Wucheroniabancrolti
d) Schistoma

Answer Key:

1	c	2	b	3	c	4	a	5	c
6	a	7	a	8	c	9	a	10	d
11	a	12	a	13	b	14	d	15	c
16	b	17	b	18	b	19	c	20	b
21	c	22	a	23	a	24	d	25	a
26	b	27	c	28	c	29	c	30	c
31	c	32	b	33	c	34	b	35	a
36	b	37	d	38	d	39	b	40	a
41	d	42	c	43	a	44	b		

Important Short Answers

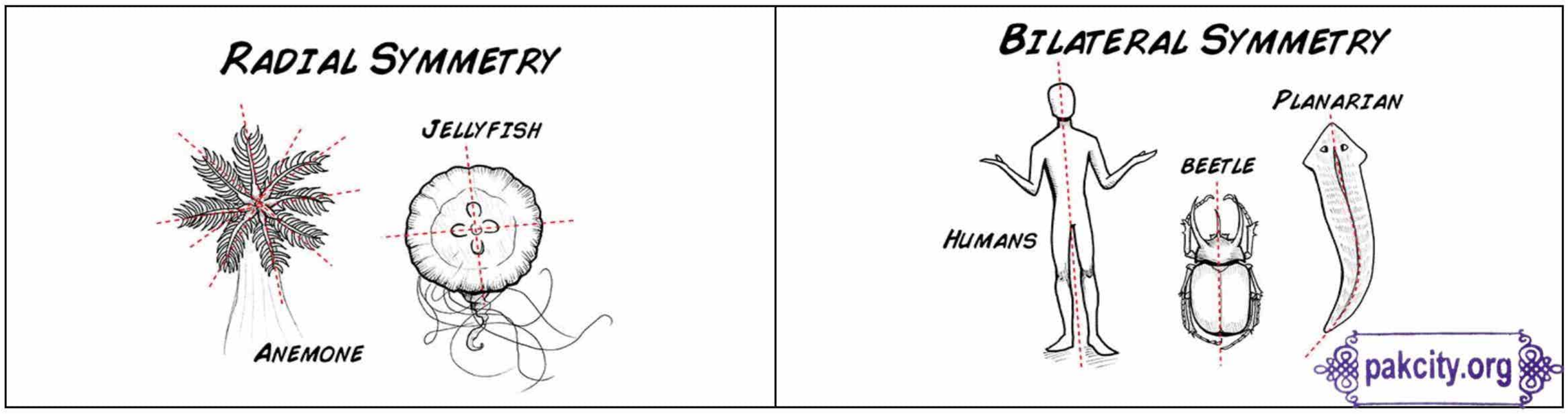
Q:1 What type of animals are included in the kingdom Animalia?

Ans: Kingdom animalia consists of all animals which are:

i. Multicellular
ii. Diploid Eukaryotic
iii. Ingestive heterotrophs
iv. Developed from two dissimilar haploid gametes (eggs and sperm)

Q:2 Differentiate between Radial and Bilateral symmetry.

Radial symmetry/Grade Radiata	Bilateral symmetry/Grade Bilateria
• These animals have radial symmetry.	• These animals have bilateral symmetry.
• In radial symmetry, the part of the body is arranged around a central axis in such a way that any plane passes through the central axis divides the animal into two equal halves that are almost mirror image of each other.	• In bilateral symmetry, a plane through the midline of the body divides into roughly equivalent right and left halves that are mirror image.
• All the animas with radial symmetry having a top and bottom and similar body parts are arranged as spokes or radiate from a central body axis. E.g. The cylindrical body of sea anemone can be cut into two equal halves vertically in any plane.	• The front or anterior end of the animal energy has a head. The posterior or rear end of the animal may be equipped with a tail. There are well defined dorsa and ventral surfaces.
• Grade radiate includes those animals that are simplest of Eumatazoa and are diploblastic. Phylum Cnidaria (Coelenterata) is included in this grade. It includes e.g. Jelly fish, Sea anemone belong to phylum Cnidaria.	• All the animas included in grade Bilateria are triploblastic. These may be acoelomate, pseudcoelomate or Coelomate. The animals belonging to phyla Platyhelminthes, Aschelminthes Annelida, Mollusca, Arthropoda, Echinodermata, Hemichordata and Chordata are included in this grade.
• Radial symmetry is considered an adaptation for a sessile life.	• Bilateral symmetry is considered an adaptation to motility.
• In Echinoderms the larval stages show bilateral symmetry and the adult secondarily develops radial symmetry.	• In Echinoderms the larval stages show bilateral symmetry
• The head is not distinct.	• The head is present at the anterior end.

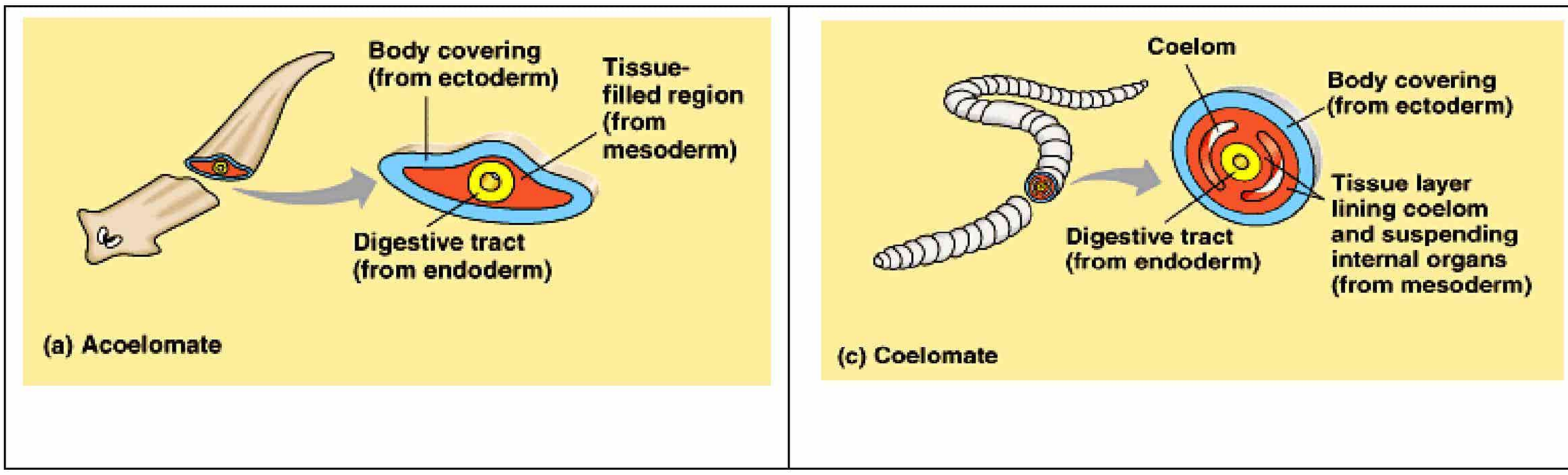


Q:3 What are coral reefs?

Ans: Coral reefs: Corals are formed from the secretion produced by specialized polyps that are present in certain coelenterates. These polyps are covered by the stony cups due to the hardening of their secretion. From the mouth of the stony cup a polyp can pass out its tentacles for feeding and withdraw it when not feeding. Most such coelenterates are colonial. Living polyps are found in the surface layer of corals. However on the lower side and at the base are present masses of dead stony structures called coral reefs. These are mostly formed of calcium carbonates (Lime-stone).

Q:4 Differentiate between Acoelomate and Coelomates.

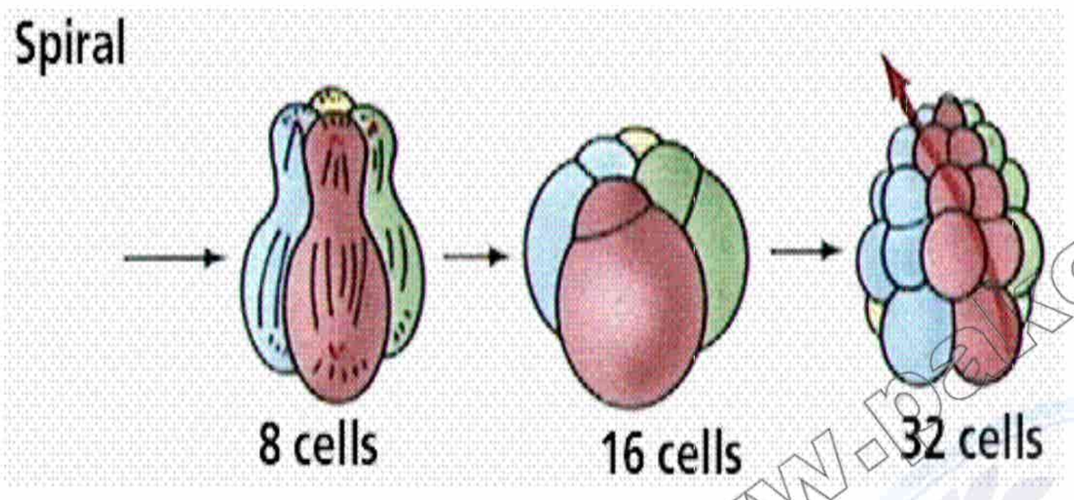
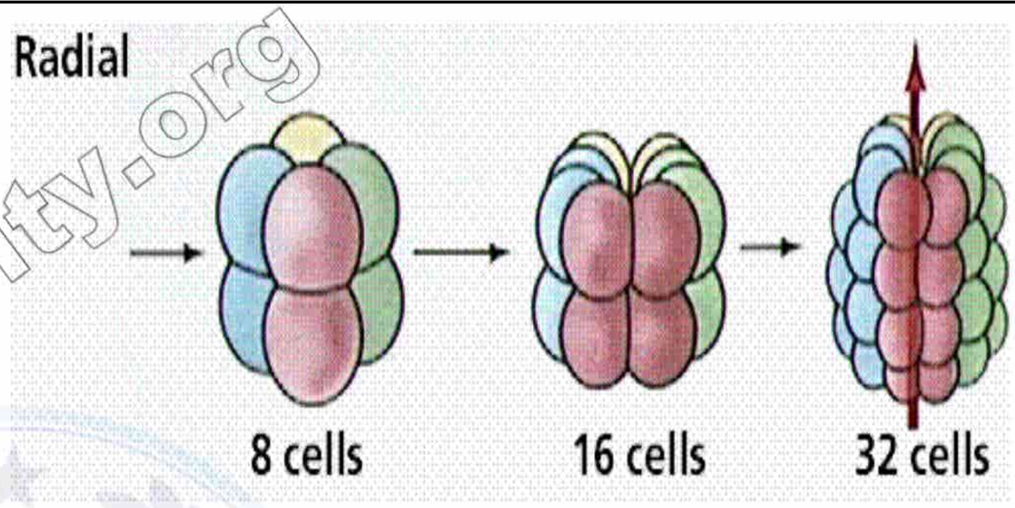
Acoelomate	Coelomate
• The animals without body cavity are called acoelomates.	• The animals with true coelom derived from mesoderm are called coelomates.
• Acoelomates do not possess a fluid-filled cavity between the body wall and the digestive tract.	• A coelom is a fluid-filled cavity, which lies between the body cavity and the gut.
• Acoelomates are invertebrates.	• Coelomates can be either vertebrates or invertebrates.
• All coelomates are protostomes.	• Coelomates can be either protostomes or deuterostomes
• The gut (digestive canal) is sac type in acoelomate. They have no special transport system. The excretory system is composed of fame cells, excretory ducts and excretory pores. Nervous system is well developed.	• The coelomate have more complex gut and nervous system. They also have well developed excretory system, circulatory system, respiratory system and reproductive system.
• Ribbon worms, tapeworms, flukes, and planarians like Platyhelminthes are the examples of acoelomates.	• Chordata, Echinodermata, Brachiopoda, Ectoprocta, Phoronida, Mollusca, Arthropoda, and Annelida are the examples of coelomates.



Q:5 Differentiate between Diploblastic and Triploblastic animals and organization.

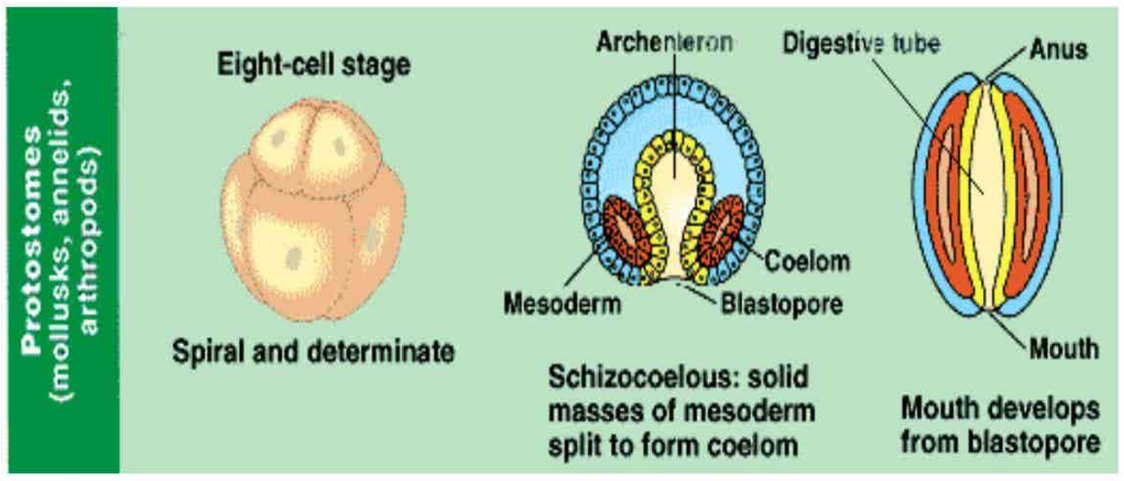
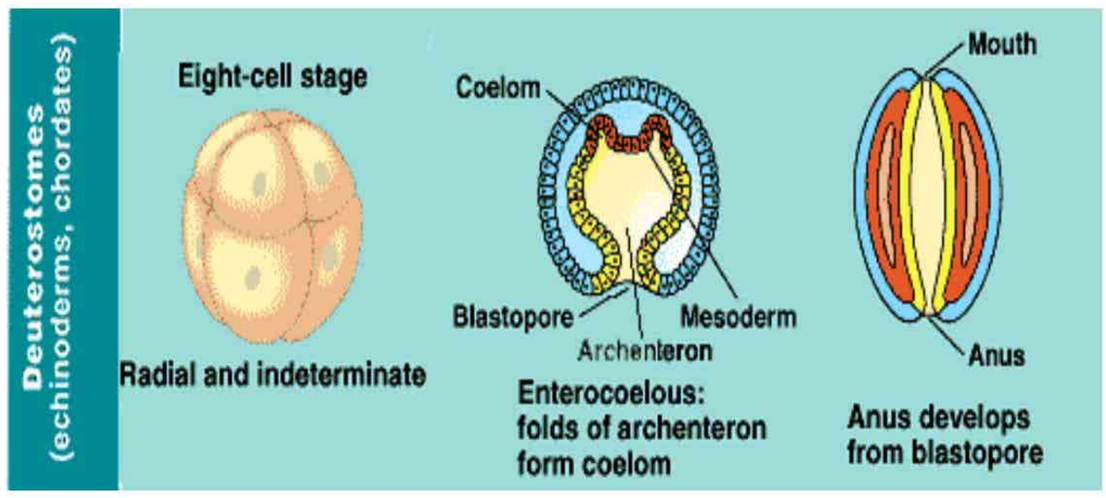
Diploblastic organization	Triploblastic organization
• Diploblastic animals produce two primary germ layers, endoderm and ectoderm during gastrulation.	• Triploblastic animals produce three primary germ layers, endoderm, ectoderm and the mesoderm.
• Diploblastic animals are radially symmetric.	• Triploblastic animals are bilaterally symmetric.
• Diploblastic animals are lacking a mesoderm. In between endoderm and the ectoderm, mesoglea can be identified.	• Triploblastic animals develop a mesoderm.
• Diploblastic animals do not have body cavities.	• Most triploblastic animals develop a body cavity, the coelom.
• Endoderm of the diploblastic animals forms true tissues and the gut. • Ectoderm of the diploblastic animals forms epidermis, nervous tissue and nephridia.	• Endoderm of triploblastic animals forms lungs, stomach, colon, liver, urinary bladder, etc. • Ectoderm of the triploblastic animals forms epidermis, hair, eye lens, brain, spinal cord, etc.
• There is only one cavity in the body called gastrovascular cavity which has only mouth. As from this mouth the food and wastes are removed along with the water. This is known as sac like digestive system.	• The digestive system is of tube type. In tube type digestive system the mouth is at the anterior end while the anus is ant the posterior end.
• A special transport system is absent. Most substances are distributed within the body by the process of diffusion.	• Special transport system i.e. blood vascular system is present in most of the cases.
• Central nervous system is absent. However a network of neurons is present.	• Central nervous system is present.
• Animals included in phylum Cnidaria (coelenterate) are diploblastic.	• Animals included in this group are from phylum Platyhelminthes to chordates.

Q:6 Differentiate between Spiral cleavage and Radial cleavage.

Spiral Cleavage	Radial Cleavage
• In this cleavage the line or planes of cleavages are not symmetrical (not one above the other) between poles.	• In this cleavage, the planes of cleavage are symmetrical to the polar axis.
• These planes are diagonal (cross) to the polar axis. So they produce unequal cells around the axis of polarity.	• This cleavage produces tiers of the cells on the top of each other.
• The role of all the blastomeres is determined in the formation of embryo. The fate of each blastomere is foretold.	• The fate of each blastomere is not pre-determined.
• Each blastomere cannot produce new complete embryo.	• Any one blastomere can produce a complete embryo.
• E.g. Annelida.	• E.g. Echinodermata
	

Q:7 Differentiate between Proterostomia and Deuterostomia.

Series Proterostomia	Series Deuterostomia
• Cleavage or division of the zygote is spiral or determinate.	• Cleavage is radial and indeterminate.
• The mouth arises from the blastopore or form anterior margin during development.	• Mouth is formed at some distance anterior to the blastopore and blastopore forms the anus during development.
• Coelom or body cavity is formed by the splitting of the mesoderm. This condition is called Schizocoelous.	• Coelom is developed as an outpouching of the archenterons. This condition is called Enterocoelous.
• Mesoderm is derived from the cells on lips of blastopore.	• Mesoderm is derived from wall of developing (Archenteron).
• This series Proterostomia includes animals	• This series includes animals belonging to

belonging to phyla Aschelminthes (Nematoda) Annelida, Mollusca and Arthropoda.	Echinodermata, Hemichordata and Chordata.
	

Q:8 Differentiate between Parazoa and Eumatazoa.

Parazoa	Eumatazoa
• In these animas there is no tissue organization and have no organ.	• In these animals the tissues are organized into organs and organ system.
• They have indeterminate (indefinite) shape and are asymmetrical.	• They have determinate (definite) shape and are symmetrical.
• These are the simplest animals.	• These are the complex animals.
• Phylum porifera is included in this sub kingdom.	• Most phylum of kingdom Animalia (about 29) belongs to sub kingdom Eumatazoa. These phyla are other than porifera.

Q:9 Differentiate between Amniotes and Anamniotes.

Amniotes	Anamniotes
• Amniotes are a group of higher vertebrates who have an extra-embryonic membrane called amnion during the embryonic stage.	• Anamniotes are a group of lower vertebrates who do not have an amnion during their embryonic stage.
• Amniotes do not lay eggs in water instead they lay eggs on lands or they keep fertilized eggs within the mother organism.	• Anamniotes depend on water for reproduction. They lay eggs in water.
• Amniotes do not have a permeable skin.	• Anamniotes have a permeable skin for the exchange of water and gasses.
• This group includes animals such as reptiles, birds, and mammals.	• Anamniotes include fishes and amphibians.

Q:10 Differentiate between Cartilaginous fishes and Bony fishes.

Cartilaginous fishes	Bony fishes
• Cartilaginous fish refers to a class of fish with a skeleton made up of cartilages.	• Bony fish refers to a large class of fish distinguished by a skeleton made up of bone.
• Cartilaginous fish can be exclusively found in marine water.	• Bony fish can be found in both fresh and marine water.
• Cartilaginous fish has an endoskeleton made up of cartilages.	• Bony fish has an endoskeleton made up of bones.
• The exoskeleton of cartilaginous fish is made up of very small denticle coated with sharp enamel known as placoid.	• The exoskeleton of bony fish is made up of thin bony plates known as cycloids.
• Cartilaginous fish has a ventrally-positioned mouth.	• Bony fish has a mouth at the anterior tip of the mouth.
• Cartilaginous fish has five to seven gills. The gills of the cartilaginous fish are not covered with an operculum.	• Bony fish has four pairs of gills. The gills of the bony fish are covered with an operculum.
• Cartilaginous fish exhibits internal fertilization.	• Bony fish exhibits external fertilization.
• Cartilaginous fish excretes urea.	• Bony fish excretes ammonia
• Shark, skates, and rays are examples of cartilaginous fish.	• Salmon fish, rohu, trout, flying fish, and seahorse are examples of bony fish.

Q:11 Differentiate between Prototheria and metatheria subclasses of mammals.

Prototheria	Metatheria
• These are egg laying mammals.	• They have an abdominal pouch the marsupium.
• They are ovo-viviparous.	• They are viviparous.
• Mammary glands are without nipples or teats.	• The nipples of glands are in the marsupium.
• Examples: Duck bill platypus, echidna.	• Examples: Opossum, Kangaroo.

Q:12 Differentiate between class Crustaceans and class Myriapoda of phylum Arthropoda.

Class crustaceans	Class Myriapoda
• Many legs are present.	• Numerous legs are present.
• These organism exhibit larva stages.	• No larva forms.
• Their body has cephalothorax and abdomen.	• Their body has minute head or non-prominent head with long abdomen.
• Examples: Cray fish, Crab and Daphnia	• Examples: Centipede and Millipede.

Q:13 Differentiate between Class Insecta and Class Arachnida of phylum Arthropoda.

Class Insecta	Class Arachnida
• Insects are small arthropods who possess six legs or 3 pairs and one or two pairs of wings.	• They have 4 pairs of leg or eight legs.
• Insects are mostly terrestrial. Some insects can be aquatic and parasitic.	• Arachnids are mainly terrestrial, and some are parasitic.
• Complex larval stage.	• No larva usually.
• Many insects have wings.	• Arachnids do not have wings.
• The body of insects is divided into head, thorax, and abdomen.	• The body of the arachnids is divided into cephalothorax and abdomen.
• Examples: Butterfly, beetle, bee, ant, fly, termite, grasshopper, true bugs, and louse are examples of insects.	• Examples: Spider, acari, amblypygid, and scorpions are examples of arachnids.

Q:14 Differentiate between Class Gastropoda and Class Bivalvia.

Class Gastropoda	Class Bivalvia
• Symmetry: The gastropods are asymmetrical because of an embryonic event, which is called torsion: this could be followed by coiling; visceral mass is covered by a single piece, usually coiled, shell.	• Symmetry: These animals are bilaterally symmetrical. Their body is laterally compressed and is enclosed in two pieces of shells.
• Habitat: They are either aquatic or terrestrial (in damp environment).	• Habitat: Bivalves are aquatic animals.

• Respiration: The aquatic gastropods have gills while in terrestrial gastropods the mantle cavity is converted into lungs	• Respiration: The process of respiration is carried out by plate-like gills.
• Examples: garden snail and slug (shell lost)	• Examples: marine mussel and oyster.

Q: 15 What are Tetrapods?

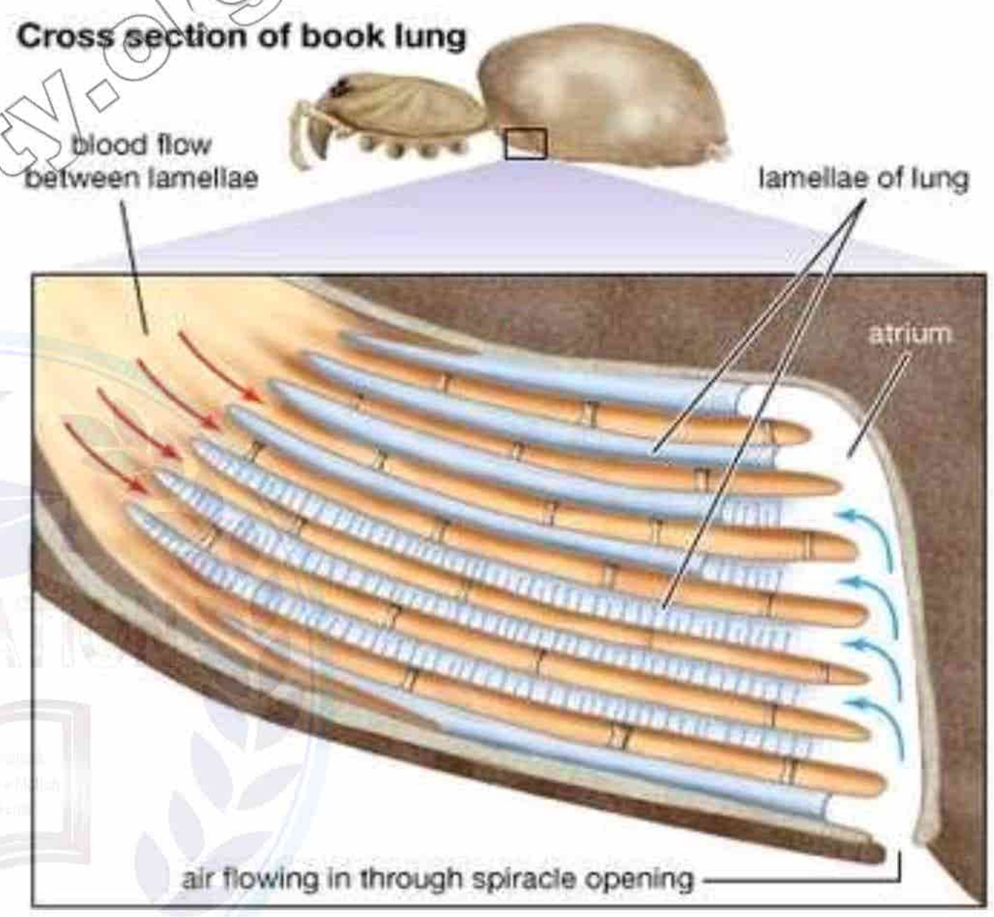
Ans: Tetrapods: All the animals having four limbs are called tetrapods.

This super class is divided into following classes:

- Class Amphibia
- Class Aves
- Class Reptilia
- Class Mammalia

Q:16 What is book lung?

Ans: Book lung:



It is respiratory organ of some air breathing arachnids, consisting of projections containing blood and arranged like leaves of a book in a depression of body wall.

- Each book lung consists of a series of thin plates that are highly vascular (i.e., richly supplied with blood) and is arranged in relation to each other like the pages of a book. These plates extend into an internal pouch formed by the external skeleton that opens to the exterior by a small slit. This provides an extensive surface for the exchange of oxygen and carbon dioxide with the surrounding air. There are four pairs in scorpions and up to two in spiders.

Q:17 Give beneficial and harmful effects of insects.

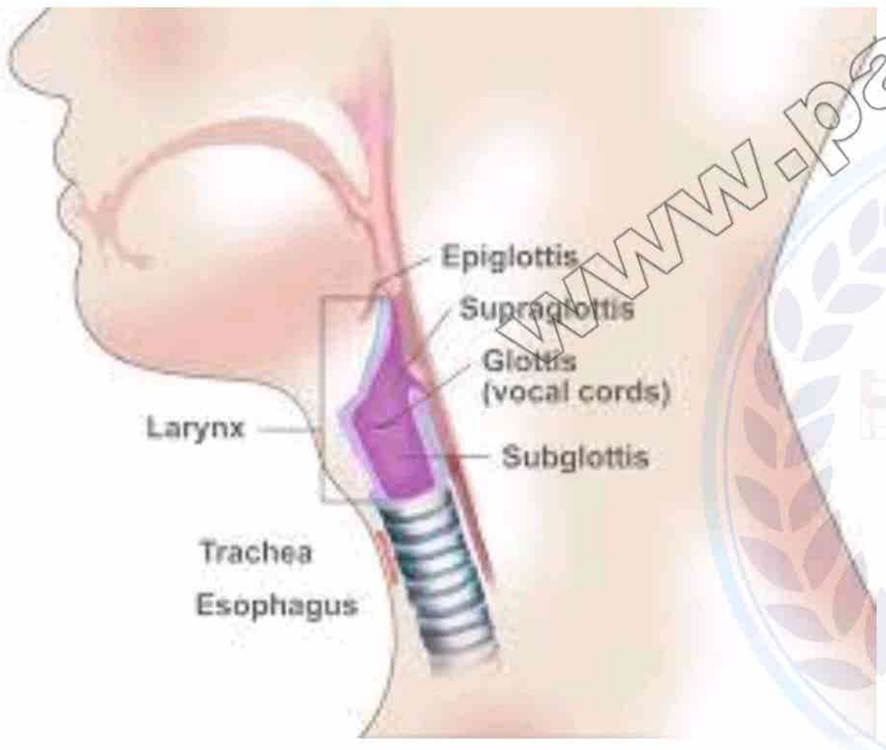
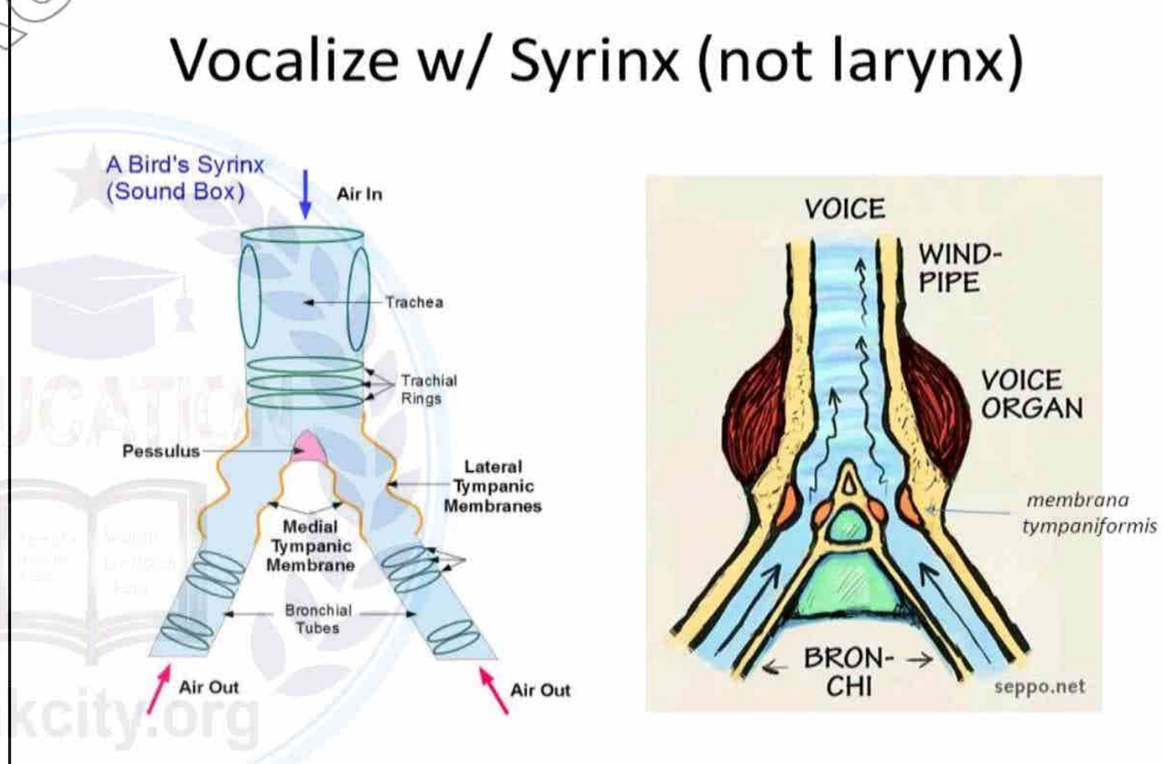
Ans: Beneficial Insects:

- Honey bee provides honey and wax.
- Silkworm gives us silk.
- Insect larvae are the source of food for fish.
- Some insects are predaceous (Wasp, lady birds) on other harmful insects (Aphids, caterpillars).
- Some insects are scavengers they ear up dead animals and vegetable matters.

Harmful Insects:

- Female mosquito of genus Anopheles transmits Plasmodium that causes malaria in man.
- Tse-tse fly of American countries transmits Trypanosoma, the cause of sleeping sickness and skin diseases in man and cattle.
- The common housefly carries disease causing organisms of cholera and hepatitis etc.
- The locust that move in large numbers from country to country cause damage to standing crops and other pants.

Q:18 Differentiate between larynx and Syrinx.

Larynx	Syrinx
• This is the structure present in mammals which is responsible for voice production i.e. vibration of vocal cords by air.	• This is the structure in birds which is responsible for voice production.
• It is located at anterior (Upward/Start) of trachea.	• It is located down the trachea at the junction of trachea and bronchi.
• The larynx is made from a mix of mesoderm and neural crest cells	• The syrinx is made of just mesoderm cells—there are no neural crest cells involved.
	

Q:19 Differentiate between Polychaeta and Oligochaete.

Polychaeta	Oligochaeta
• They are mostly aquatic (Marine).	• They may be terrestrial or aquatic.
• These have a distinct head region with eyes and structure known as palps and tentacles.	• These animals have internal and external segmentation.

• Organs of locomotion are Perapodia.	• Organs of locomotion are Setae.
• Sexes are usually separate.	• Sexes are united (Hermaphrodite).
• During development these give rise to trochophore larvae.	• Larvae are not formed during development.
• Examples: Nereis, Chaetopterus.	• Examples: Lumbricus, Pheretima, and other earthworms.

Q:20 What is swim bladder; give its function.

Ans: Swim bladder: Swim bladder is an organ present in bony fishes.

Function:

- Swim bladder produces resistance against gravity in fishes i.e. provides buoyancy hence help in swimming in fishes.
- It may be attached to pharynx or not.
- Gases present in swim bladder are carbon dioxide, nitrogen and oxygen.

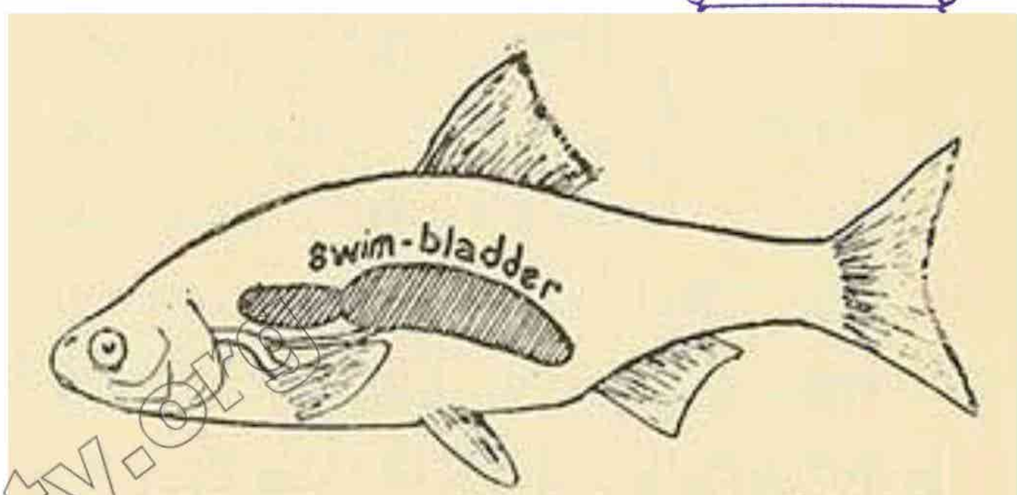
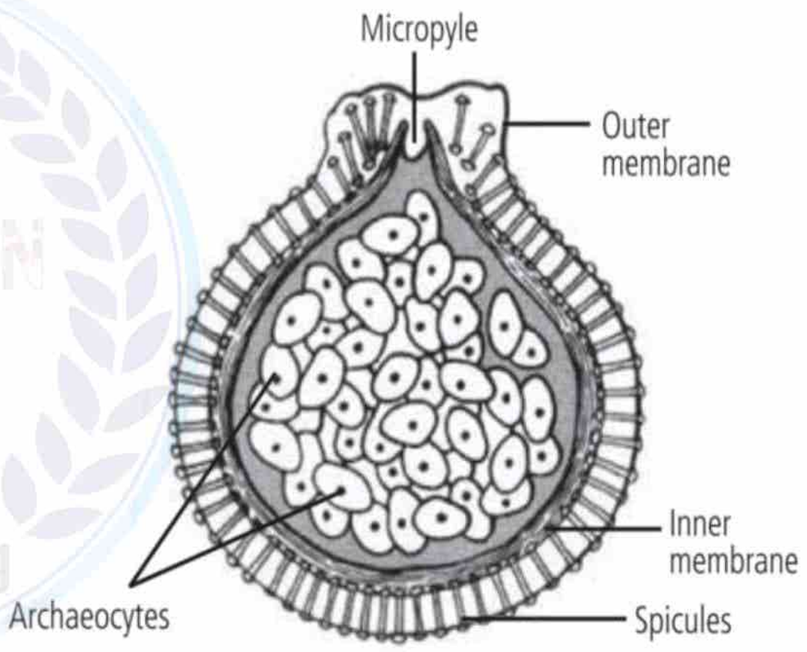


Fig. 330. Location of the swim bladder.

Q:21 What are gemmules and give their function?

Ans: Gemmules: Asexual reproduction in sponges occurs by budding. Buds may be external or internal. Internal buds are called gemmules.

- Both types of sponges develop into new sponges.
- They are expelled from the adult sponge and, in some marine species, serve as a normal reproductive process, sometimes, as a means to carry the sponges over periods of unfavorable conditions when the adults degenerate; e.g., drought, temperature.



Gemmule of *Spongilla*

Q:22 Enlist some adaptation for aquatic mode of life.

Ans: These are:

1) Streamline i.e. boat shaped body.
2) Gills for respirations
3) Presence of swim bladder helping in swimming
4) Single circuit heart for blood circulation
5) Presence of paired or unpaired fins for swimming

Q:23 Give the economic importance of sharks.

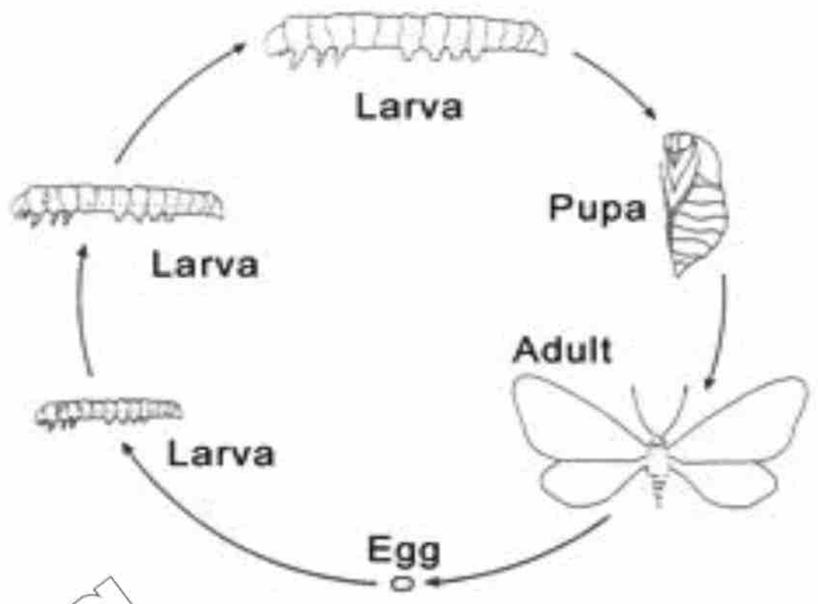
Ans: Sharks are of economic importance:

1) Most of them destroy fish lobsters & crabs.
2) In some parts of the world sharks are used as a food by man.
3) Shark liver oil is extracted and used in medicine as a source of Vitamin A and D.
4) Sharks skin leather is used for making articles.

Q:24 Write about Metamorphosis in insects. Give its type.

Ans: Metamorphosis: Metamorphosis is an abrupt change of structure during the life cycle.

- Metamorphosis is derived from two words Meta= Change + Morphe = Form).
- Metamorphosis occurs in life cycle of insects.



Types of Metamorphosis:

I. Complete metamorphosis:

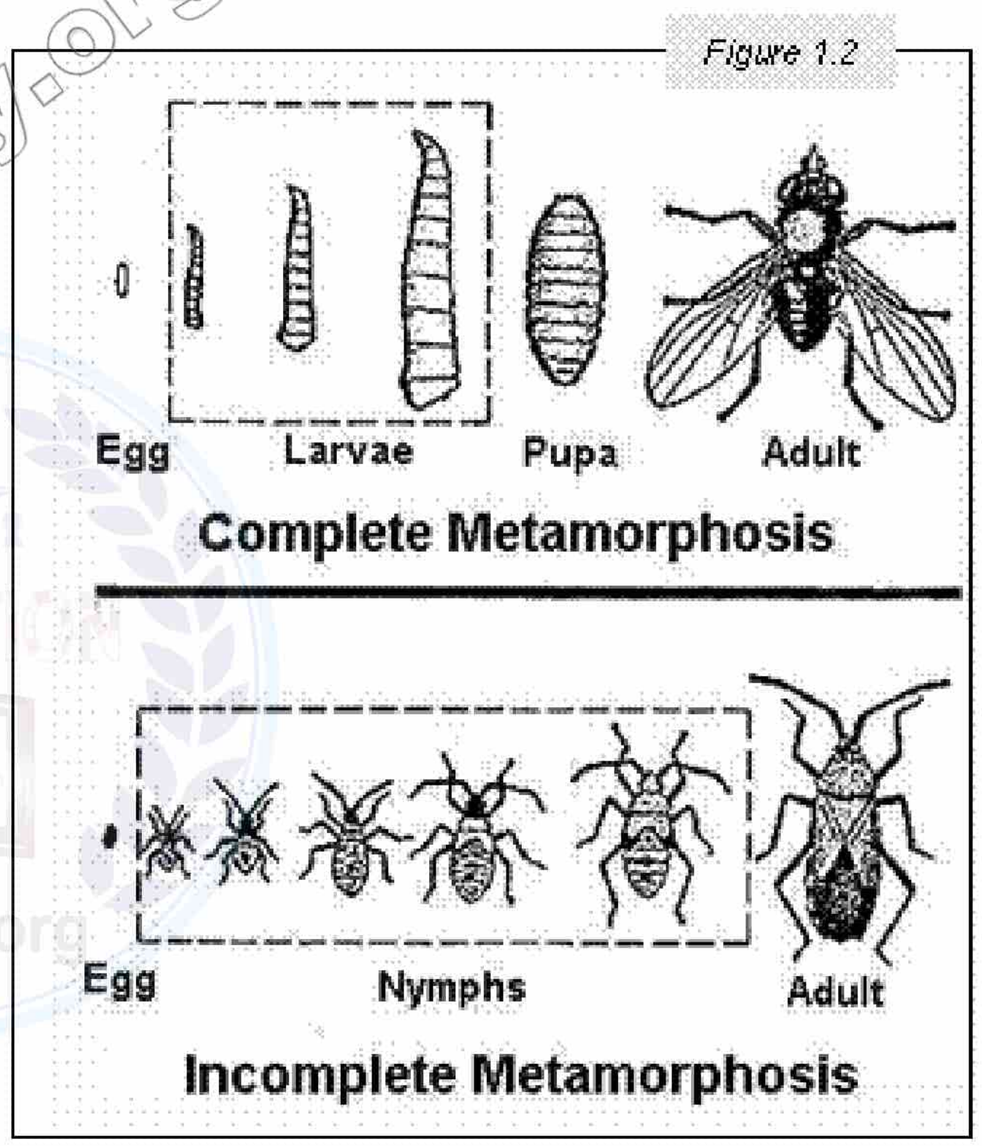
In complete metamorphosis there are three morphological forms in the life cycle:

- The egg develops into larvae.
- Larva is converted into motionless pupa.
- The pupa finally develops into an adult.
- Examples: Mosquito, dragonfly, butterfly and many insects.

II. Incomplete Metamorphosis:

In some primitive insects the metamorphosis is incomplete.

- The larva resembles adult and called nymph or instar. It lives in the same habitat as adult.
- Example: Cockroach etc.



Q:25 What are hermaphrodite:

Ans: Hermaphrodite: Animals that possess both male and female sexes together in a single organism are called hermaphrodite.

- They are also called Bisexual.
- They can produce and release both male and female gametes.
- In such animals cross fertilization is the rule but in certain conditions self fertilization may occur.

- Examples: Mostly Annelids, Platyhelminthes, Porifers etc.

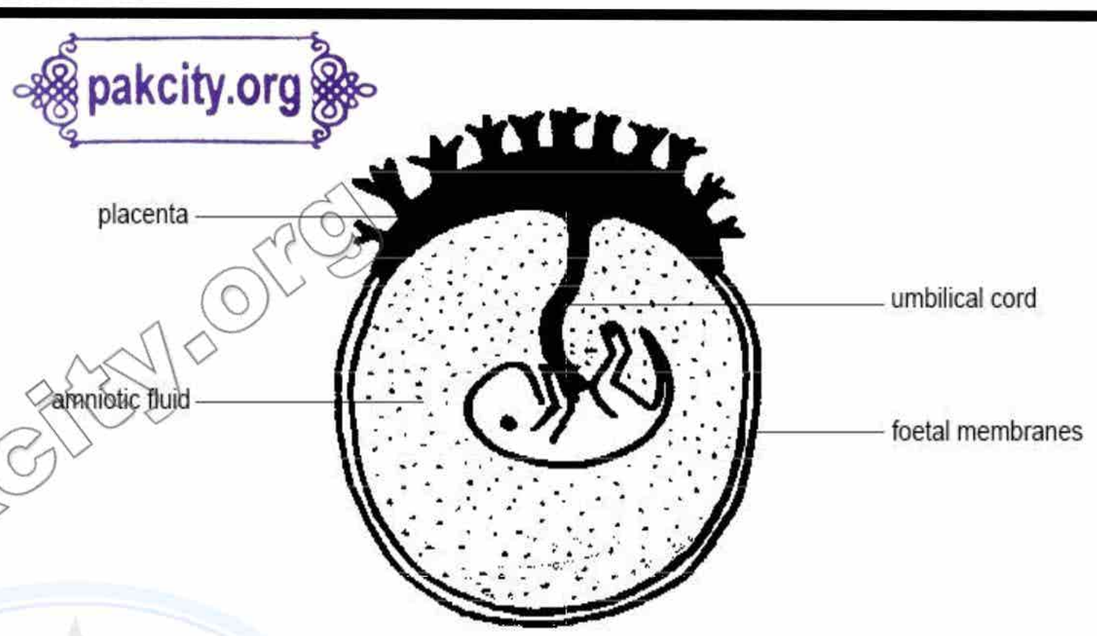
Q:26 Write down adaptations for parasitic mode of life in platyhelminthes.

Ans: The platyhelminthes have adapted following characters for parasitic mode of life:

- The epidermis is absent and resistant cuticle is formed for protection.
- They have developed adhesive organs (such as suckers and hooks) for attachment to the host.
- Digestive system is simple and less developed due to increased dependence on host.
- There is degeneration of muscular system and nervous system.
- The reproductive systems are complicated and the ova are produced in a large number. In this way the continuity of the species is ensured.
- The complex life cycle and the presence of more than one host during the life cycle increases the chances of survival of the parasite.

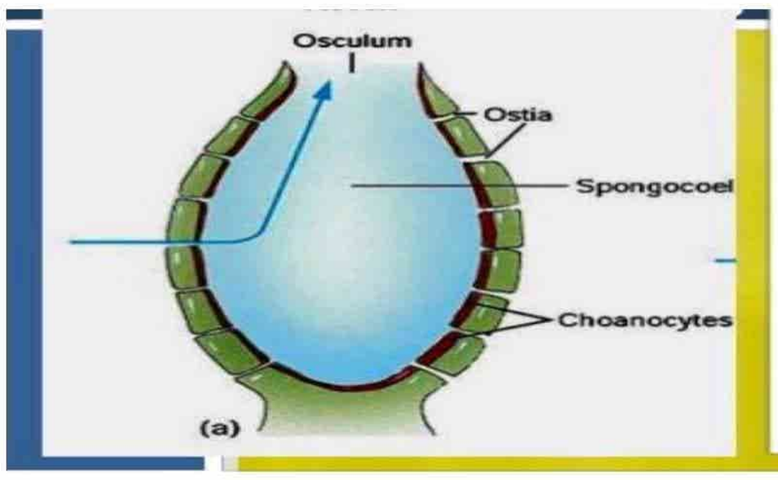
Q:27 Define placenta. Write its function.

Ans: During development placenta is formed through which the fetus is nourished.



- The placenta has endocrine function also (i.e. it produces certain hormones). For this reason these mammals are called placental mammals.
- The placenta provides maximum nourishment to the developing embryo.
- Complete development takes place in the uterus of the mother and fully developed individual are born (Viviparous).

Q:28 Differentiate between Osculum and Ostia.

Osculum	Ostia
• A large opening in a sponge through water flows out of the sponge.	• A series of tiny pores all over the body of a sponge that let water into the sponge. One of these is called Ostium.
• The sponge may have more than one Osculum.	• Ostia are smalls pore and are present in huge number.
	

Q:29 Discuss the importance of sponges.

Ans:

Many artificial sponges have been made from synthetic material. However Natural sponges are still in demand. The best commercial sponges are found in the warm waters of Mediterranean sea.

Some uses are as follows:

- The skeleton of sponges has long been used for washing and bathing.
- They have great capacity to absorb water. Therefore they are used in surgical operations for absorbing fluids and blood.
- They are also used for some sound absorption in buildings.

Q:30 Discuss skeleton in sponges.

Ans: The skeleton is in the form of needle-like structures of different shapes and is called spicules.

- Spicules may be calcareous or siliceous.
- Both sponges have a skeleton of spongin fibers.

The spicules are present among pinacocytes and around osculum and ostia. They provide support.

Q:31 Define the term protandrous:

Ans: Protandrous:

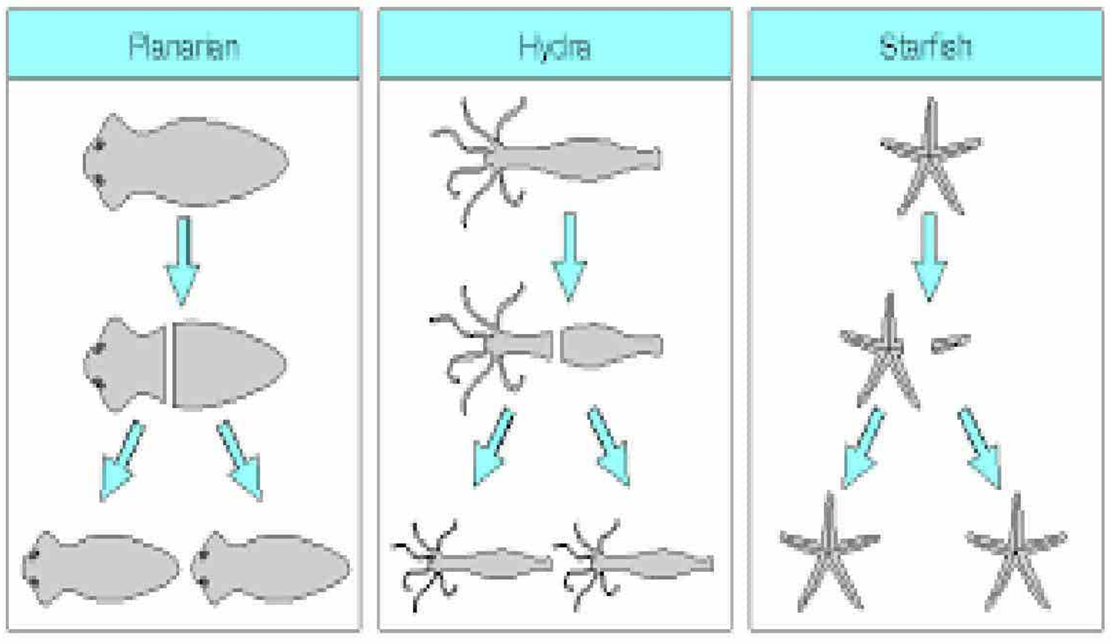
Some sponges reproduce sexually. These are mostly hermaphrodite and mostly protandrous. Protandry means male sex cells develop first and release sperms while female sex cells develop late after male sex cells in sponges.

Q:32 Compare infestation with disinfestation.

Infestation	Disinfestation
• In general, the term infestation refers to parasitic diseases caused by animals such as arthropods (i.e. mites, ticks, and lice) and worms, but excluding condition caused by protozoa, fungi, bacteria, and viruses, which are called infection.	• Physical or chemical process to destroy or remove small undesired able animal forms, particularly arthropods or rodents, presents on the body, clothing, or environment of a person or domestic animals.
• By improper cooking the parasite like tape worm (which has not been killed) begins to develop further in the intestine of man.	• Certain medicines and anema is given to patient for the removal of parasites from the digestive tract of the body.

Q:33 What is regeneration, give an example.

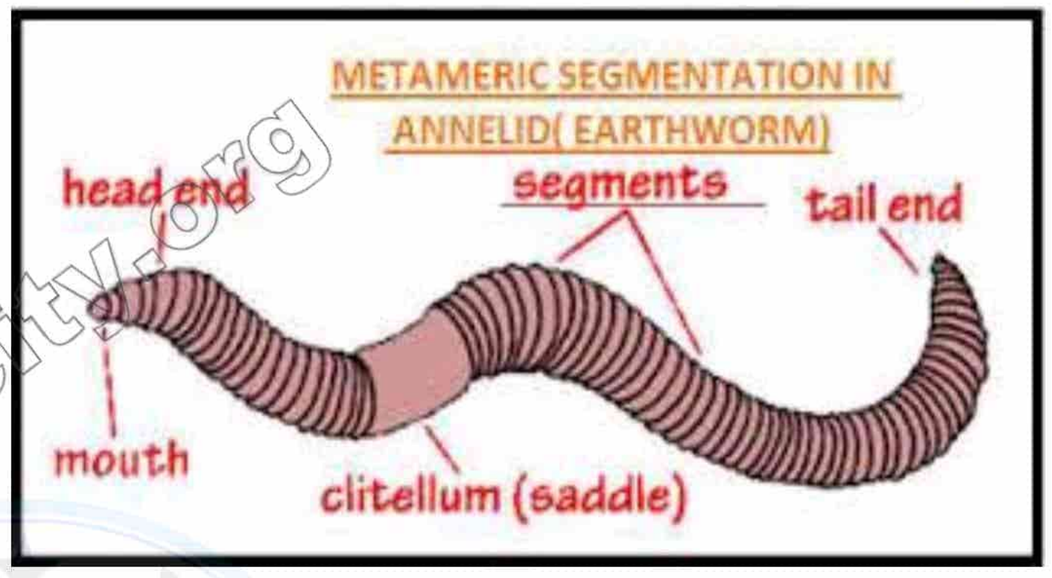
Ans: Regeneration: Regaining of the lost part of the living organisms is called regeneration.



- If sponge cells are separated, they can rearrange and reorganize.
- Some sponges have regenerative ability.
- Examples: Starfishes, sponges like Sycon Leucosolenia etc.

Q:34 What is metameric segmentation?

Ans: Segmentation: The body is metamerically segmented and is divided transversely into a number of segments.



- The subdivisions are indicated externally by constrictions of the body surface.
- Internally the segments are separated from each other by septa extending across the coelom.
- Various body systems such as gut, blood vessels and nerve cord are continuous throughout the length of body penetrating each segment.

Q:35 Give examples of parasitic nematodes.

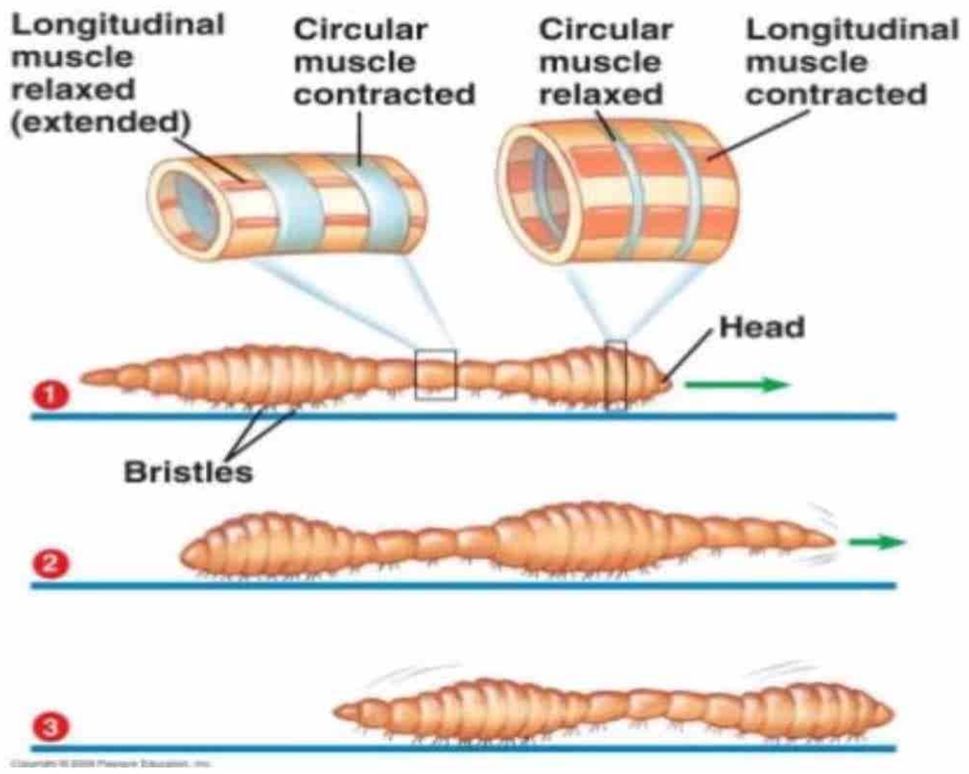
Ans: Parasitic Aschelminthes are very important because they cause very serious disease in man and plants. Some examples are as follows:

- **Ascaris lumbricoides:** it is an intestinal parasite of man.
- **Genus Rahbditis:** It contains many species normally found in soil, organic matter or water and feces of man or animals.
- **Enterobious Vermicularis:** Pinworms are parasites in human caecum, colon and appendix. Their movement cause intense itching of anus, inflammation of mucous membrane of colon and appendix resulting in insomnia and loss of appetite.
- **Ancyclostoma duodenale:** It is commonly known as hookworm. It is a parasite of human small intestine and it is very dangerous because it sucks blood and body fluid. During feeding they produce an anticoagulant to prevent clotting of blood and after feeding leave the wound bleeding. In children it can cause severe anemia and retard physical growth.

Q:36 How locomotion occurs in Annelids.

Ans: Locomotion: It is by the interaction of muscles and hydrostatic skeleton.

- Contraction of circular muscle produces a pressure in the coelomic fluid forces the body to elongate.
- Contaction of longitudinal muscles produces a pressure in the coelomic fluid to cause the body to widen.
- The organs of locomotion in annelids are chitinous chaetae or seatae which are embedded in sacs (earthworm) or parapodia present in the body wall (e.g. Nereis). The chaetae are absent in leech.
- Example: Locomotion in earthworm.



Q:37 What is use of leech? OR How leech feeds on its host?

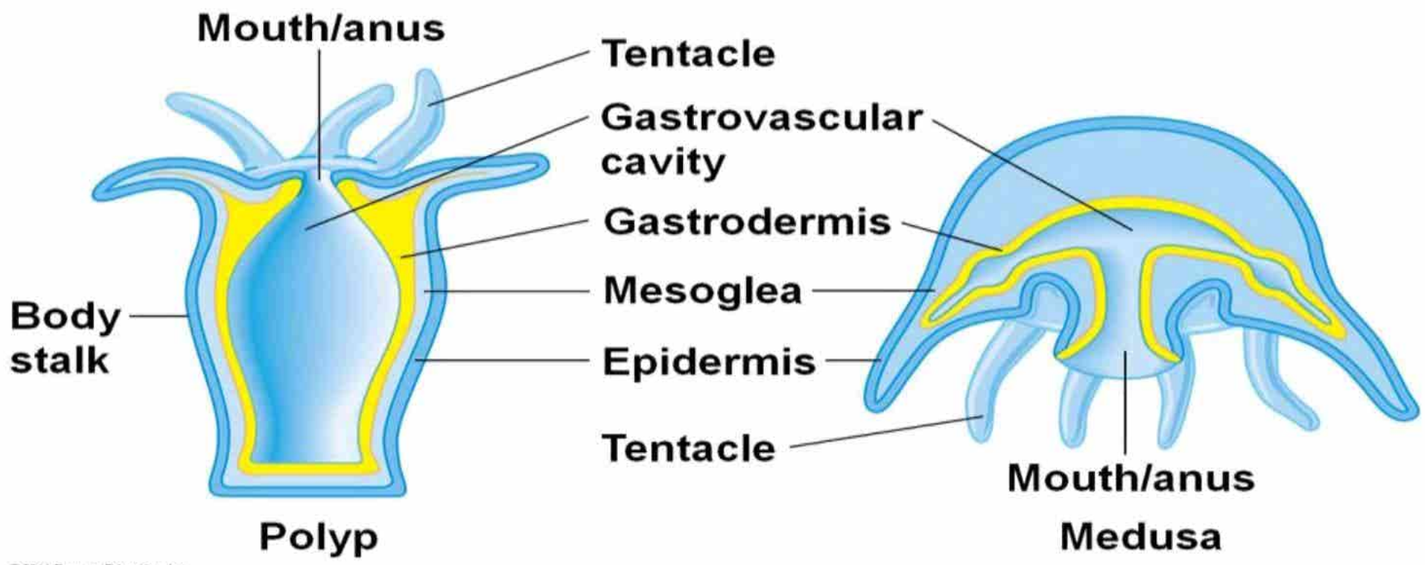
Ans: Use of Leech:

- Chitinous jaws for making a puncture in the skin of the host.
- They secrete anti-coagulants (Like hirudin and heparin) into the wound.
- As a result there is smooth flow of the blood into the digestive system of the leech.
- Here it can be stored for a long time.
- The example is Hirudo medicinalis (medical leech).

Q:38 Differentiate between polyps and medusa.

Ans: Coelentrates show alternation of generations. One generation is polypoid generation while other is medusoid generation.

Polyps	Medusae
• Polyps have cylindrical body.	• Medusae have inverted bowl/cup/umbrella shaped body.
• Polyps are sessile.	• Medusae are motile.
• Polyps reproduce asexually.	• Medusae reproduce sexually.
• Polyps produce medusae by budding.	• Medusae reproduce sexually by producing meiotic gametes.
• Hydra, Obelia predominantly exist in polyp forms.	• Jelly fish exists predominantly in medusa shape.



Q:39 What is polymorphism? What type polymorphism is found in obelia?

Ans: Polymorphism:

The occurrence of structurally and functionally more than two different types of individual called the zooids within the same organism is called polymorphism. For example, in obelia there are three types of zooids:

I. The gastrozooids are feeding individuals.
II. The gonozooids or blastostyles are asexually reproducing individual.
III. The medusae are free-living sexually reproducing individuals.

Some colonial members have up to five different types of zooids. These perform different functions for colony. An example is Physalia (Portuguese man of war).

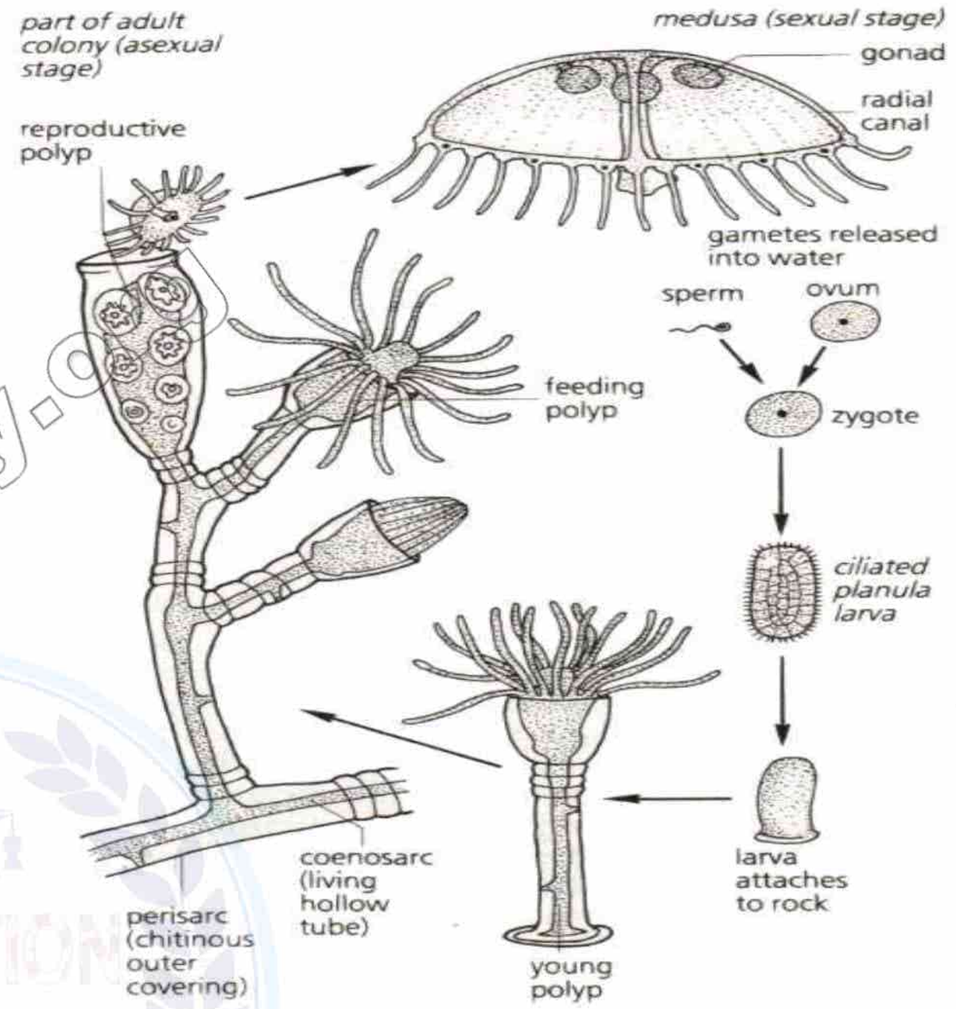


Fig 47·4 Structure and life cycle of Obelia

Q:40 What are the reptilian features of archaeopteryx? OR Write down the name and characteristics of the earliest bird fossil.

Ans: Both birds and mammals have evolved from reptiles along different lines. Both birds and mammals show highest development in animal kingdom.

- The earliest known fossil bird is Archaeopteryx. It is also called as lizard tailed bird. Its two species were found from rocks of Jurassic period.

Characters of Archaeopteryx:

- The Archaeopteryx was about the size of a crow with skull similar to that of present day birds.
- It had elongated jaws in the form of a beak. Bony teeth are present in the jaw socket. However the modern birds do not have teeth. Many fossils of birds were found that had teeth.
- Each wing had three claws.
- With the exception of feather these birds are like the dinosaurs (giant reptiles of the past).

Q:41 What is economic importance of Molluscs?

Ans: Economic importance of Molluscs is:

- *Pearl oyster* makes valuable peals naturally. Pearl culture industry is being successfully run in Japan and China by artificial making pearls in *Pearl oyster*.
- Shells of Molluscs are used in button industry, used for making ornaments, and are mixed with tar for making roads in America.
- *Teredo,* a shipworm, damages wooden parts of ships.
- Slugs are harmful to plants in the garden and cultivation. They not only eat leaves, but also destroy plants by cutting up their roots and stems.

Q:42 Differentiate between Cold blooded and Warm blooded animals.

Cold blooded animals	Warm blooded animals
• These are the animals whose body temperature varies as the external temperature changes.	• These are the animals which maintain a constant body temperature that is generally higher than the environmental temperature, regardless of external temperature.
• Cold blooded animals always gain energy in the form of heat to regulate body heat.	• Warm blooded animals can produce heat within their body.
• Cold-blooded animals regulate heat by various methods including bathing in the sun, changing the body colors, stretching out limbs under sunlight, etc.	• Warm-blooded animals regulate heat mainly by metabolic processes and adaptive mechanisms such as sweating, panting, insulation, regulation of blood flow to extremities, migration, nocturnally active, hibernation, burrowing, changing the body surface area to body volume ratio, etc.
• They have lower metabolic rates at colder temperature.	• They all have higher metabolic rate.
• Examples: Fishes, Amphibians and Reptiles	• Examples: Birds and Mammals