**Q1. What are Polychaetes?**

**Timing: 12.1 sec**

**Ans:** Polychaetes are soft-bodied marine Annelids with bristle-like parapodia, living in tubes and burrows in the sand floating freely on the surface or crawling on the surface of the sediment. They are exhibited in all marine habitats and are the most diverse group among soft-bottom macrobenthos with a total of 11,456 species belonging to 1,417 genera recorded to date. Polychaetes play a fundamental role in the functioning of the marine ecosystem by providing several ecological services such as bioturbation, remineralization, oxygenation, bioengineering, food for other organisms, ecological indicators, etc.

**Q2. What is the definition of a Polychaete worm?**

**Timing: 6.06 Sec**

**Ans:** Polychaetes are soft-bodied marine Annelids with bristle-like parapodia, living in tubes and burrows in the sand floating freely on the surface or crawling on the surface of the sediment. They are the most diverse group among soft-bottom macrobenthos with a total of 11,456 species belonging to 1,417 genera recorded to date. Polychaetes play a fundamental role in the functioning of the marine ecosystem by providing several ecological services such as bioturbation, remineralization, oxygenation, bioengineering, food for other organisms, ecological indicators, etc.

**Q3. Where we can find Polychaetes?**

**Timing: 4.25 Sec**

**Ans:** Polychaetes can be found from the intertidal regions to the deep hydrothermal vents and are exhibited in all marine habitats. They are soft-bodied marine Annelids with bristle-like parapodia, living in tubes and burrows in the sand floating freely on the surface or crawling on the surface of the sediment.

**Q4. How Many Numbers of Polychaetes Species are there in the world?**

**Timing: 4.23 sec**

**Ans:** The total number of Polychaetes species belonging to 1,417 genera recorded to date is 11,456, according to Pamungkas et al. (2019).

**Q5. What are the taxonomic features of a Polychaete worm?**

**Timing: 4.29 sec**

**Ans:** Polychaete annelids have several taxonomic features, including parapodia, which are paired lateral outgrowths on each body segment that can bear various structures including bristles known as chaetae. Polychaetes also have appendages known as "cirri" that serve a variety of functions, including sensory roles, reproduction, and respiration. Additionally, taxonomists use a combination of morphological characteristics such as prechaetal lobes, postchaetal lobes, and ailerons to accurately identify species within the Glyceridae family. A holistic approach to taxonomy, considering multiple morphological aspects, is crucial for accurate identification

**Q6. What are Glyceridae?**

**Timing: 4.57sec**

**Ans:** Yes, the Glyceridae family is a taxonomic family of marine polychaete annelids. It includes four genera: Glycera, Glycerella, Hemipodia, and Proboscidea. The family is characterized by elongated body segments that taper at both ends, bi- or triannulate segments, a conical prostomium with four appendages on the anterior-most annulus, a long, cylindrical, club-shaped, muscular proboscis with four hook-like jaws, and various forms of cirri, including simple, branched or bifurcated, foliaceous, papillated, setose, ventral, and dorsal types. The morphology, number, and arrangement of cirri can be specific to a particular species within the Glyceridae family. Taxonomists often rely on a combination of corral features and other morphological characteristics to accurately identify species.

**Q7. What are the taxonomic characteristics of Glyceridae Family?**

**Timing: 4.24sec**

**Ans:** The Glyceridae family of marine polychaete annelids is characterized by elongated, tubular bodies that can reach up to one meter in length. They have tapered bodies with numerous bi- or triannulate segments, and their prostomium is pointed and distinctly annulated. They have a long, muscular, and eversible proboscis with four dark, hook-like curved jaws, each with a rod-like, more or less triangular or deeply incised supportive aileron. They do not possess eyes. The family exhibits various forms of cirri, including simple, branched or bifurcated, foliaceous, papillated, setose, ventral, and dorsal types. The morphology, number, and arrangement of cirri can be specific to a particular species within the Glyceridae family. The family has 4 genera namely Glycera, Glycerella, Hemipodia, and Proboscidea.

**Q8. How many genus are there in The family Glyceridae?**

**Timing: 3.96 sec**

**Ans:** The Glyceridae family has 4 genera, namely Glycera (Lamarck), Glycerella (Arwidsson), Hemipodia (Kinberg), and Proboscidea (Lesueur in Blainville).

**Q9. Which Genus of Glyceridae Family have been recorded from India?**

**Timing: 3.12sec**

**Ans:** As of 2023, the only genus recorded in India is Glycera.

**Q10.** **Are Polychaetes worms?**

**Timing: 1.23sec**

**Ans:** Yes, Polychaetes are worms. They are soft-bodied marine Annelids with bristle-like parapodia, living in tubes and burrows in the sand floating freely on the surface or crawling on the surface of the sediment.

**Q11. How many valid species of glycera are present in the world?**

**Timing: 1.20sec**

**Ans:** There are a total of 75 valid species of Glycera present in the world.

**Q12. How many valid species of Glycera recorded from India?**

**Timing: 1.02sec**

**Ans:** As of now, there are 21 valid species of Glycera recorded in India.

**Q13.** **List out the glycera species found in India?**

**Timing: 2.14sec**

**Ans:** The species of Glycera found in India are:

Glycera alba

Glycera americana

Glycera africana

Glycera benguellana

Glycera brevicirris

Glycera cinnamomea

Glycera fallax

Glycera lancadivae

Glycera lapidum

Glycera longipinnis

Glycera natalensis

Glycera nicobarica

Glycera oxycephala

Glycera subaenea

Glycera sphyrabrancha

Glycera tesselata

Glycera tridactyla

Glycera unicornis

Glycera embranchiata

Glycera posterobranchia

Glycera unicornis

**Q14. What are the Characteristics of Genus Glycera?**

**Timing: 3.73sec**

**Ans:** The body of the genus Glycera is characterized by numerous elongated segments that taper at both ends. These segments are bi- or triannulate. The prostomium is conical in shape, mostly pointed, and distinctly annulated. The anterior-most annulus has four appendages, with the anterior pair situated termino-aterally and the posterior pair more dorsolateral. The posterior-most annulus has one pair of nuchal organs, but no eyes are present. The proboscis is long, cylindrical, club-shaped, muscular, and densely covered with numerous papillae. These papillae bear specialized structures on their posterior sides. The tip of the everted proboscis has four dark, hook-like curved jaws, each with a rod-like, more or less triangular or deeply incised supportive aileron.

**Q15. what is a branchia in glycera genus?**

**Timing: 2.45sec**

**Ans:** In the genus Glycera, branchiae are respiratory structures that resemble gills and aid in gas exchange. The presence, absence, shape, and position of branchiae are important characteristics used to distinguish between species. There are several types of branchiae that may be observed in the Glyceridae family, including simple, branched, cirriform, lamellate, bushy, or absent branchiae. The specific location, number, and size of the branchiae can provide valuable information for identifying species within the Glyceridae family.

**Q16. What are body rings in Glycera?**

**Timing: 1.87sec**

**Ans:** In the genus Glycera, the body rings are characterized by being segmented and round ring-like throughout the body. In Glyceridae, the body rings are sometimes bi-annulated, tri-annulated, and sometimes numerous indistinct rings are present.

**Q17. What are the taxonomic characteristics of Glycera alba?**

**Timing:10.27sec**

**Ans:** Glycera alba, a species first described by O F Müller in 1776, is native to Norway. The body of this species is characterized by bi-annulated mid-body segments. The prostomium is conical in shape and consists of 9-11 rings. The species has three types of proboscidal papillae: the most abundant are terminal fingernail structures with long stalks and longitudinal ridges on the nail, followed by digitiform shape papillae with longitudinal ridges, and finally oval shape papillae without any ridges. The aileron has a pointed triangular base. The parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes. The prechaetal lobe is short, with notopodial lobes that are triangular in shape and longer than the rounded neuropodial lobes. The postchaetal lobes are short, with notopodial lobes that are triangular in shape and longer than the rounded neuropodial lobes. The dorsal cirrus starts from the 3rd segment and is conical to oval in shape, placed close to the parapodial base. The ventral cirrus is broadly triangular in the anterior and mid-body regions, but transforms to a digitiform shape in the posterior end. The species has a non-retractile digitiform branchia that is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end. The chaetae consist of simple capillaries in notopodia and compound spinigers in neuropodia. Glycera alba can be found in the Andaman Sea, Black Sea, Gulf of Aden, Gulf of Oman, Arabian Gulf, North Sea, Mediterranean Sea, Madagascar, North Sea, NW Pacific coasts, Red Sea, South China Sea, and in various regions of India including Andhra Pradesh, Gujarat, Goa, Karnataka, Kerala, Maharashtra, Odisha, West Bengal, and Tamil Nadu.

**Q18.** **What are the taxonomic characteristics of Glycera africana?**

**Timing: 11.23sec**

**Ans:** Glycera africana is a species of marine worm with the following taxonomic characteristics:

Type Locality: Not Documented

Body rings: The mid-body segments are bi-annulated.

Prostomium: The prostomium is elongated and conical in shape with 19-24 rings.

Proboscidal papillae: There are three types of parapodia. The most abundant papillae have a terminal fingernail structure with a medium-length stalk and longitudinal ridges on the nail. The rest of the papillae are digitiform in shape with longitudinal ridges, and there are also oval-shaped papillae without any ridges.

Aileron: The aileron has a pointed triangular base.

Parapodia: The first two setigers are uniramous, followed by biramous parapodia.

Prechaetal lobe: There are two prechaetal lobes of the same length and two postchaetal lobes. The two prechaetal lobes are observed to be triangular in shape with a broad base in the anterior and mid-body region, transforming to digitiform in the posterior segments.

Postchaetal lobe: The postchaetal lobes are short, with the notopodial lobes being triangular in shape and longer than the rounded neuropodial lobes.

Dorsal cirrus: The dorsal cirrus starts from the 3rd segment and is conical to oval in shape, placed close to the parapodial base.

Ventral cirrus: The ventral cirrus is broadly triangular in the anterior and mid-body regions, but transforms to a digitiform shape in the posterior end.

Branchia: The branchia is present and is non-retractile, with a digitiform shape.

Position of Branchia: The branchia is located between the 16-22nd segment, termino-dorsally on the parapodia to the posterior end.

Chaete: The chaete consists of simple capillaries in the notopodia and compound spinigers in the neuropodia.

Distribution: Glycera africana can be found in the Bay of Bengal, Gulf of Aden, Suez Canal, West and east coasts of Africa, and in India's Andaman & Nicobar Island.

**Q19.** **What are the taxonomic characteristics of *Glycera benguellana*?**

**Timing: 8.27sec**

**Ans:** Species Name: Glycera benguellana Augener, 1931 Type Locality: Norwegian EEZ Body rings: numerous indistinct rings Prostomium: long, with numerous indistinct rings Proboscidal papillae: Two types of papillae 1) few broadly conical papillae and 2) numerous digitiform ones with 10-16 rings Aileron: blade-like, the shorter limb being a mere expansion at the base of the other Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: two triangular prechaetal lobes with superior one is slightly shorter in the middle of the body and in posterior segments Postchaetal lobe: low and rounded Dorsal cirrus: relatively large and arises in the junction of the parapodium with the body Ventral cirrus: no Branchia: Absent Position of Branchia: No branchia present Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Africa, in India Arabian Sea, Andaman and Nicobar Islands

**Q20.** **What are the taxonomic characteristics of *Glycera americana*?**

**Timing: 8.97sec**

**Ans:** Sure, here are the taxonomic characteristics of Glycera americana:

Species Name: Glycera americana Leidy, 1855

Type Locality: Point Judith, Atlantic City, Atlantic Ocean

Body rings: Mid-body segments biannulate; anterior annulus about as long as posterior one or slightly longer

Prostomium: Conical in shape with 10-12 rings

Proboscidal papillae: Two types of papillae 1) numerous conical papillae with 2 U-shaped ridges, 2) isolated, broader, oval to globular papillae without ridges

Aileron: With a triangular base

Parapodia: First two parapodia uniramous following parapodia biramous

Prechaetal lobe: Two slender triangular to digitiform lobes becoming slightly slimmer in the posterior parapodia; in the last parapodia notopodial lobe is shorter than neuropodial one

Postchaetal lobe: Two shorter postchaetal lobes; anteriorly both lobes rounded rest both lobes are elongated and slender triangular, in posterior most parapodia both lobes generally shorter and rounded

Dorsal cirrus: From 3rd parapodium, conical to oval; inserted on body wall slightly above parapodial base

Ventral cirrus: Slender triangular to digitiform, slightly shorter than post chaetal lobes in posterior slender and elongated; in last about same as neuropodial prechaetal lobe

Branchia: Retractile, bush-like when completely developed and everted present

Position of Branchia: Starting from about 7th to 22nd parapodium to near posterior end

Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia

Distribution: Arabian Sea, Atlantic coasts of North and South America, Brazil, Bangladesh, the Caribbean Sea, Japan, British Columbia, Gulf of Mexico, Gulf of Saint Lawrence, Pacific coasts of South America, New Zealand, North Atlantic Ocean, Red Sea and in India Arabian Sea.

**Q21.** **What are the taxonomic characteristics of *Glycera brevicirris*?**

**Timing: 8.53sec**

**Ans:** Species Name: Glycera brevicirris Grube 1870 Type Locality: Indian Ocean Body rings: anterior body segments are bi-annulated, mid-body segments are more or less tri-annulated Prostomium: Elongated conical prostomium which is longer than width with 10-12 rings Proboscidal papillae: two types 1) most abundant papillae are digitiform shape with 8-17 transverse ridges, 2) rest are oval shaped papillae with longitudinal ridges Aileron: deeply incised base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: two prechaetal lobes are observed to be of triangular form with a broad base in the anterior and mid-body region to digitiform in the posterior segments Postchaetal lobe: short and rounded throughout the body segments dorsal cirrus: Conical to oval dorsal cirrus appears from the 3rd segment and placed slightly away from the parapodial basis ventral cirrus: broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape Branchia: Absent Position of Branchia: Absent Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: West and East Atlantic, Gulf of Mexico, Caribbean Sea, Red Sea, Indian Ocean, Andaman Sea, Indo-Pacific, Central Pacific Basin, East Pacific coast, in India Andaman and Nicobar Islands.

**Q22.** **What are the taxonomic characteristics of *Glycera cinnamomea*?**

**Timing: 7.64sec**

**Ans:** Species Name: Glycera cinnamomea GRUBE 1874 Type Locality: Sri Lankan EEZ Body rings: Mid-body segments biannulate Prostomium: Conical with 9-12 rings Proboscidal papillae: three types of papillae 1) numerous papillae with terminal fingernail structure with long stalk and some longitudinal ridges on nail, 2) less numerous digitiform papillae with straight, median longitudinal ridge 3) isolated, broader, oval to globular papillae without ridges Aileron: with pointed triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: two slender triangular to digitiform prechaetal lobes of about the same length Postchaetal lobe: Two shorter, slender triangular post chaetal lobes of about same length Dorsal cirrus: from 3rd parapodium, conical to oval, inserted on body wall slightly above parapodial base Ventral cirrus: slender triangular to digitiform, slightly shorter than postchaetal lobes Branchia: non-retractile, with 1 5 digitiform rami branchia present Position of Branchia: from about parapodium 21 32 to near posterior end, situated dorsally on parapodial bases, best developed in mid-body the region, about as long as the prechaetal lobes Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Indian Ocean, Red Sea, Persian Gulf, South China Sea, Indo-Pacific, in India Andhra Pradesh, Gujarat, Goa, Karnataka, Kerala, Maharashtra, Odisha, West Bengal, Tamil Nadu, Andaman and Nicobar Islands.

**Q23.** **What are the taxonomic characteristics of *Glycera fallax*?**

**Timing: 8.81sec**

Species Name: Glycera fallax QUATREFAGES 1850 Type Locality: French EEZ Body rings: Mid-body segments biannulate; anterior annulus about as long as posterior one or slightly longer. Prostomium: Conical with 14-17 rings Proboscidal papillae: two types of papillae 1) numerous conical papillae with 3 U-shaped ridges, 2) isolated, broader, oval to globular papillae without ridges Aileron: triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Two slender triangular to digitiform prechaetal lobes of about same length; both lobes becoming slightly slimmer in posterior parapodia; in last parapodia notopodial lobe shorter than neuropodial one. Postchaetal lobe: Two shorter postchaetallobes Dorsal cirrus: conical to oval shape present from 3rd segments onwards; conical to oval, inserted on body wall slightly above parapodial base Ventral cirrus: slender triangular to digitiform, about as long as neuropodial postchaetal lobe; in posterior parapodia slender and elongated; in last parapodia about as long as neuropodial prechaetallobe; situated medio-ventrally on parapodia Branchia: retractile, blister-like Position of Branchia: starting from about 17th to 25th parapodium to near posterior end; situated mediallyon anterior side of parapodia. Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: North Sea, Mediterranean Sea, Andaman Sea and in India Kerala Coast

**Q24.** **What are the taxonomic characteristics of *Glycera lancadivae*?**

**Timing:7.26sec**

**Ans:** Species Name: Glycera lancadivae Schmarda, 1861 Type Locality: Sri Lankan EEZ Body rings: anterior regions are bi-annulated, mid-body segments are more or less tri-annulated Prostomium: Conical with 9-12 rings Proboscidal papillae: two types of papillae 1) numerous digitiform papillae with undulating ridges, 2) few shorter and broader, conical to oval papillae without ridges Aileron: slight dent in pointed triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Two slender, triangular to digitiform prechaetal lobes and neuropodial lobes were twice longer than notopodial lobes Postchaetal lobe: One short rounded postchaetal lobe Dorsal cirrus: oval to globular in shape present from 3rd segments onwards inserted on body wall above parapodial base Ventral cirrus: slender, triangular to digitiform in shape, about as long as postchaetal lobe whereas in posterior parapodia it becomes slender and elongated Branchia: absent Position of Branchia: absent Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Sri Lanka, Madagascar, Persian Gulf, Australia and in India Bay of Bengal, South Arabian Sea and Andaman and Nicobar Islands

**Q25.** **What are the taxonomic characteristics of *Glycera lapidum*?**

**Timing: 8.81sec**

**Ans:** Species Name: Glycera lapidum Quaterefages 1866 Type Locality: Berwick Bay, England Body rings: anterior regions are bi-annulated, mid-body segments are more or less tri-annulated Prostomium: Elongated conical which is longer than width with 10-12 indistinct rings Proboscidal papillae: two types of papillae 1) Most papillae are digitiform shapes of various, 2) the rest of the papillae are conical shape that resemble oval shapes without any ridge lengths with undulating ridges Aileron: pointed triangular base with a slight dent Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: The notopodial prechaetal lobe remains shorter than the prechaetal lobe of the neuropodia throughout the body. In the last segments, the prechaetal lobe of noto- and neuropodia is seen in the digitiform shape Postchaetal lobe: short and rounded throughout the body Dorsal cirrus: conical to oval shape present from 3rd segments onwards inserted far away from the parapodia basis Ventral cirrus: broadly triangular in the anterior and mid-body regions and digitiform shape in the posterior end Branchia: absent Position of Branchia: absent Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Mostly in temperate waters, tropics of Indo-Pacific. In India Andaman and Nicobar Island and Indian Ocean region

**Q26.** **What are the taxonomic characteristics of *Glycera longipinnis*?**

**Timing: 7.94sec**

**Ans:** Species Name: Glycera longipinnis Grube, 1878 Type Locality: Philippines EEZ Body rings: mid-body segments are bi-annulated Prostomium: conical with 12 rings Proboscidal papillae: Two types of papillae 1) long cylindrical papillae without rings 2) few stout forms Aileron: with two long slender rami, one twice the length of the other and narrowly united at the base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Prechaetal lobes elongate, pointed and subequal Postchaetal lobe: postchaetal lobes single low, rounded, or faintly bilobed structure Dorsal cirrus: ovoid Ventral cirrus: triangular, much shorter than the prechaetal lobes Branchia: Present. filament situated on the dorsal edge of the parapodia longer than the prechaetal lobes Position of Branchia: present from the 20th chaetiger onwards Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Red Sea, Sumatra, and in India Arabian Sea, Bay of Bengal, Andaman and Nicobar Islands

**Q27.** **What are the taxonomic characteristics of *Glycera natalensis*?**

**Timing: 9.02sec**

**Ans:** Species Name: Glycera natalensis Day, 1957 Type Locality: KwaZulu-Natal Body rings: Anterior segments biannulate, mid-body segments more or less distinctly triannulate, and median region dorsally with up to 4 tubercles on each side Prostomium: conical with 16-21 rings Proboscidal papillae: three types of papillae 1) numerous papillae with terminal fingernail structure with long stalks with numerous V-shaped ridges and some longitudinal ridges on nail, 2) less numerous digitiform papillae with indistinctly straight, median, longitudinal ridge and 3) isolated, broader, oval to globular papillae without ridges Aileron: with triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Two slender triangular to digitiform prechaetal lobes same length, both lobes slightly slimmer posterior parapodia, last parapodia notopodial lobe shorter than neuropodial Postchaetal lobe: Two shorter postchaetal lobes; anteriorly both lobes rounded, following parapodia notopodial lobe elongated and slender triangular Dorsal cirrus: from 3rd parapodium, conical to oval Ventral cirrus: slender triangular to digitiform, about as long as neuropodial postchaetal lobe Branchia: non-retractile, simple, digitiform branchia present Position of Branchia: starting from about 32nd to 54th parapodium to near posterior end Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: South Africa, Sri Lanka, and in India Kerala and Andaman.

**Q28.** **What are the taxonomic characteristics of *Glycera nicobarica*?**

**Timing: 15.06sec**

**Ans:** Species Name: Glycera nicobarica Grube, 1866 Type Locality: Nicobar Islands Body rings: mid-body segments are bi-annulated Prostomium: Elongated conical prostomium longer than width with 10-11 rings Proboscidal papillae: two types 1) most abundant papillae are conical shape with three transverse ridges, 2) rest are oval shape papillae without ridges Aileron: Aileron with a Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: triangular form with a broad base in the anterior and mid-body region to digitiform in the posterior segment Postchaetal lobe: postchaetal lobes are short. notopodial lobes are triangular and neuropodial lobes are rounded Dorsal cirrus: starts from 2nd segment, conical to oval shape placed close to the parapodial base Ventral cirrus: broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape Branchia: Retractile digitiform branchia is present Position of Branchia: from 19-26th segments to the posterior end, distinctly visible in the mid-body segments Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Andaman and Nicobar Islands

**Q29.** **What are the taxonomic characteristics of *Glycera oxycephala*?**

**Timing: 7.56sec**

**Ans:** Species Name: Glycera oxycephala Ehlers, 1887 Type Locality: Barbados Body rings: The anterior regions are bi-annulated, mid-body segments are more or less tri-annulated Prostomium: Elongated conical prostomium which is longer than width consists of 20-25 indistinct rings Proboscidal papillae: two types of papillae 1) Most abundant papillae conical shape with transverse ridges 11-18, 2) rest of the papillae are oval-shaped papillae with transverse ridges 5-9 Aileron: slightly arched base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: The notopodial and neuropodial prechaetal lobes are of similar length. The lobes transform from broad base to digitiform from anterior to the posterior segments Postchaetal lobe: short and rounded throughout the body Dorsal cirrus: conical to oval shape present from 3rd segments onwards, inserted near to the parapodia basis Ventral cirrus: broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape Branchia: absent Position of Branchia: absent Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Atlantic, North Sea, Red Sea, Australia, Madagascar, East Pacific, and in India Andaman and Nicobar Islands.

**Q30.** **What are the taxonomic characteristics of *Glycera papillosa*?**

**Timing: 7.73sec**

**Ans:** Species Name: Glycera papillosa Grube, 1857 Type Locality: Chilean part of the South Pacific Ocean Body rings: mid-body segments are bi-annulated Prostomium: conical with 8 rings Proboscidal papillae: Two types of papillae 1) a few ovoid forms and 2) numerous long, slender forms without rings Aileron: deeply forked and slender, the shorter limb being half the length of the longer one and united to it Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: The superior prechaetal lobe is small, the inferior one large and pointed Postchaetal lobe: Single rounded postchaetal lobe present Dorsal cirrus: small arises from the body wall above the parapodium Ventral cirrus: Ventral cirrus has a length of postchaetal lobe Branchia: absent Position of Branchia: absent Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Western Atlantic, North Carolina to the Gulf of Mexico, Chile, Western Africa, in India South Arabian Sea, Andaman and Nicobar Islands

**Q31.** **What are the taxonomic characteristics of *Glycera posterobranchia*?**

**Timing: 8.35sec**

**Ans:** Species Name: Glycera posterobranchia Hoagland, 1920 Type Locality: Philippines EEZ Body rings: mid-body segments are bi-annulated Prostomium: Elongated conical prostomium which is longer than width consisting of 10-11 rings Proboscidal papillae: Three types of papillae 1) most abundant papillae are papillae with terminal fingernail structure with medium stalk with longitudinal ridges on the stalk, 2) rest of the papillae are short conical shaped papillae with longitudinal ridges, 3) oval shaped papillae without any ridges Aileron: pointed triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: two prechaetal lobes observed to be with a triangular form with abroad base in the anterior and mid-body region to digitiform in the posterior segments Postchaetal lobe: short, notopodial lobes are triangular in shape whereas neuropodial lobes are rounded Dorsal cirrus: starts from 3rd segment conical to oval shape placed close to parapodial base Ventral cirrus: broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape Branchia: Non-retractile branchia present Position of Branchia: present between 16-24th segment medio-dorsally on the parapodia to the posterior end Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Philippine Island, South China Sea, Vietnam and in India Indian Ocean, Bay of Bengal and Andaman and Nicobar Islands

**Q32.** **What are the taxonomic characteristics of *Glycera subaenea*?**

**Timing: 8.21sec**

**Ans:** Species Name: Glycera subaenea Grube, 1878 Type Locality: Philippines EEZ Body rings: anterior segments are bi-annulated, mid-body segments are more or less tri-annulated Prostomium: conical with 8-10 rings Proboscidal papillae: Two types of papillae 1) numerous bluntly conical papillae with 1-2 rings, 2) subspherical papillae without rings Aileron: one well-developed prong and the other prong short and completely united to the first by an oblique shelf Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: 2 long, equally pointed prechaetal lobes Postchaetal lobe: The superior postchaetal lobe is pointed, the inferior one is shorter and blunt Dorsal cirrus: NA Ventral cirrus: NA Branchia: Present Position of Branchia: from chaetiger 12 situated on the anterior end of parapodium, with 2 to 5 branched digitiform lobes Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Philippines, Australia, South China Sea, Madagascar, Red Sea, South Africa and in India South Arabian Sea and Andaman and Nicobar Islands

**Q33.** **What are the taxonomic characteristics of *Glycera sphyrabrancha*?**

**Timing: 09.37sec**

**Ans:** Species Name: Glycera sphyrabrancha Schmarda, 1861 Type Locality: Jamaican EEZ Body rings: Segments biannulate with the same size of annuli from chaetiger 10, anterior ones uni-annulate Prostomium: conical with 10-12 rings Proboscidal papillae: two types of papillae: 1. numerous digitiform papillae without ridges; 2. some isolated, oval to globular papillae, without ridges Aileron: with deeply incised base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Two slender triangular to digitiform prechaetal lobes, on anterior parapodia, noto- and neuropodial prechaetal lobes subequal, middle and posterior parapodia with neuropodial prechaetal lobes slightly longer than notopodial ones Postchaetal lobe: Rounded postchaetal lobe Dorsal cirrus: digitiform with a slightly swollen dorso-basally, longer on anterior and parapodia, diminishing in size from middle to posterior parapodia ventral cirrus: triangular on anterior parapodia, digitiform on middle body region and slender on posterior parapodia Branchia: non-retractile, simple slightly triangular anteriorly becoming digitiform from middle of the anterior region, and best developed in the middle body region Position of Branchia: appears from chaetiger 15 near upper chaetal lobe Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Arabian Gulf, Andaman Sea, Aruba, Belize, Caribbean Sea, Cuba, Cura ao, Honduras, Jamaica, Panama, Philippines, Red Sea, South Africa, South China Sea, Tobago, Trinidad, Venezuela, in India Andhra Pradesh, Gujarat, Goa, Kerala, Lakshadweep Island, Maharashtra, Odisha, West Bengal, Tamil Nadu.

**Q34.** **What are the taxonomic characteristics of *Glycera tesselata*?**

**Timing: 10.65sec**

**Ans:** Glycera tesselata, first described by Grube in 1863, has its type locality in the Mediterranean Sea. The body rings of this species are bi-annulated in the anterior segments, while the mid-body segments are more or less tri-annulated. The prostomium is conical in shape with 8-9 rings. The proboscidal papillae are of two types: the most abundant are digitiform in shape with a straight longitudinal median ridge, while the rest are conical shaped papillae without any distinct ridges. The aileron has a deeply incised base. The first two parapodia are uniramous, with the following parapodia being biramous. The prechaetal lobe is triangular in form with a broad base in the anterior and mid-body region, transforming to digitiform in the posterior segments. The postchaetal lobe is short and rounded throughout the body segments. The dorsal cirrus is conical to oval in shape, starting from the 3rd segment and placed far away from the parapodial basis. The ventral cirrus is broadly triangular in the anterior and mid-body regions, but transforms to a digitiform shape in the posterior end. Branchia is absent in this species. The chaetae consist of simple capillaries in the notopodia and compound spinigers in the neuropodia. Glycera tesselata is distributed in the Northwestern and Northeastern Atlantic, Gulf of Mexico, Caribbean Sea, Mediterranean Sea, Red Sea, South coasts of Africa, Indo-Pacific, Northwestern Pacific and in India in the Bay of Bangla, Arabian Sea, North Indian Ocean and Andaman and Nicobar Islands.

**Q35.** **What are the taxonomic characteristics of *Glycera tridactyla*?**

**Timing: 6.41sec**

**Ans:** Glycera tridactyla, first described by Schmarda in 1861, has its type locality in the Atlantic Ocean. The body rings of this species are bi-annulated in the mid-body segments. The prostomium is conical with 11-14 rings. The proboscidal papillae are of three types: the most abundant are terminal fingernail structures with short stalks and longitudinal ridges on the nail, the rest are digitiform shaped with longitudinal ridges, and the last type is oval-shaped without any ridges. The aileron has a pointed triangular base. The first two parapodia are uniramous, with subsequent parapodia being biramous. The prechaetal lobe is triangular with a broad base in the anterior and mid-body region, transforming to digitiform in the posterior segments. The postchaetal lobe is short, with notopodial lobes being triangular in shape and longer than the rounded neuropodial lobes. The dorsal cirrus is conical to oval in shape and is placed close to the parapodial base from the 3rd segment. The ventral cirrus is broadly triangular in the anterior and mid-body regions, but transforms to a digitiform shape in the posterior end. The branchia is non-retractile and digitiform. The branchia is positioned between the 17-22nd segment, termino-dorsally on the parapodia to the posterior end. The chaetae consist of simple capillaries in notopodia and compound spinigers in neuropodia. This species is distributed in the Mediterranean Sea, Black Sea, South Africa, Red Sea, Japan coast, South China Sea, New Guinea, Australia, Andaman Sea and in India in the Arabian Sea, Bay of Bengal, and Andaman coast.

**Q36.** **What are the taxonomic characteristics of *Glycera unicornis*?**

**Timing: 9.14sec**

**Ans: S**pecies Name: Glycera unicornis Lamarck, 1818 Type Locality: Unknown Body rings: Mid-body segments biannulate; anterior annulus about as long as posterior one or slightly longer Prostomium: Conical with 10-13 rings Proboscidal papillae: two types of papillae: 1. numerous conical papillae with 3 U-shaped ridges; 2. isolated, broader, oval to globular papillae without ridges Aileron: with triangular base Parapodia: First two parapodia uniramous following parapodia biramous Prechaetal lobe: Two slender triangular to digitiform prechaetal lobes of about same length; both lobes becoming slightly slimmer in posterior parapodia; in last parapodia notopodial lobe shorter than neuropodial one. Postchaetal lobe: Two shorter postchaetal lobes; anteriorly both lobes are rounded; in following parapodia both lobes elongated and slender triangular, of about same length Dorsal cirrus: from 2nd parapodium, conical to oval Ventral cirrus: slender triangular to digitiform, about as long as postchaetal lobes Branchia: Branchia retractile, 1-2 digitiform branchial rami present Position of Branchia: starting from about 16th to 30th parapodium to near posterior end Chaetae: Simple capillaries in notopodia and compound spinigers in neuropodia Distribution: Andaman Sea, Black Sea, North Sea, Mediterranean Sea, Madagascar, North Sea, South China Sea, Java Sea and in India Andhra Pradesh, Gujarat, Goa, Karnataka, Kerala, Maharashtra, Odisha, West Bengal, Tamil Nadu and Andaman coast.

**Q37.** **Identify the Glycera species with the following taxonomic characteristics “three types of Proboscidal papillae where the most abundant papillae are terminal fingernail structure with long stalk and longitudinal ridges on the nail, Aileron is pointed triangular base, non-retractile digitiform branchia present and starts from 18-23 segment, ventral cirri is broadly triangular in the anterior and mid-body regions, Prechaetal lobe short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes”**

**Timing: 8.95sec**

**Ans:** The species of Glycera that can be identified by these taxonomic characteristics is Glycera alba O F Müller, 1776.

**Q38.** **Identify the Glycera species with the following taxonomic characteristics “Three types of Proboscidal papillae where the most dominant are terminal fingernail structure with medium length stalk and longitudinal ridges on the nail rest of papillae are digitiform shape with longitudinal ridges and oval shape papillae without any ridges, two prechaetal lobes of the same length and two postchaetal lobes, the two prechaetal lobe observed to be triangular shape with abroad base in the anterior and mid-body region to digitiform in the posterior segments. Digitiform branchia present between 16-22nd segment termino-dorsally on the parapodia to the posterior end”**

**Timing:2.31sec**

**Ans:** The Glycera species that matches the given taxonomic characteristics is Glycera africana Arwidsson, 1899.

**Q39.** **Identify the Glycera species with the following taxonomic characteristics “two types of Proboscidal papillae present where the most abundant are broadly conical papillae and numerous digitiform with 10-16 rings on them, branchia absent, aileron is blade like, the shorter limb is simply an extension at the base of the other, Dorsal cirri relatively large and arises in the junction of the parapodium with the body”**

**Timing: 3.89sec**

**Ans:** The Glycera species that can be identified by these taxonomic characteristics is Glycera benguellana Augener, 1931.

**Q40.** **Identify the Glycera species with the following taxonomic characteristics “ Mid-body segments biannulate; anterior annulus about as long as posterior one or slightly longer, conical in shape with 10-12 rings, two types of proboscidal papillae 1) numerous conical papillae with 2 U-shaped ridges, 2) isolated, broader, oval to globular papillae without ridges Aileron with a triangular base, First two parapodia uniramous following parapodia biramous, Prechaetal lobe Two slender triangular to digitiform lobes becoming slightly slimmer in the posterior parapodia; in the last parapodia notopodial lobe is shorter than neuropodial one, Postchaetal lobe Two shorter postchaetal lobes; anteriorly both lobes rounded; in following parapodia both lobes are elongated and slender triangular, of about same length; in posterior most parapodia both lobes generally shorter and rounded. Dorsal cirrus from 3rd parapodium, conical to oval; inserted on body wall slightly above parapodial base, ventral cirrus slender triangular to digitiform, slightly shorter than post chaetal lobes; in posterior parapodia slender and elongated; in last parapodia about as long as neuropodial prechaetal lobe; situated medio-ventrally on parapodia, Branchia retractile, bush-like when completely developed and everted present, Position of Branchia starting from about 7th to 22nd parapodium to near posterior end”**

**Timing: 4.0 sec**

**Ans:** The Glycera species that matches the given taxonomic characteristics is Glycera americana Leidy, 1855.

**Q41.** **Identify the Glycera species with the following taxonomic characteristics “two Proboscidal papillae where digitiform shape with 8-17 transverse ridges are the most abundant papillae and rest are oval shaped papillae with longitudinal ridges, aileron is deeply incised base, branchia absent, ventral cirrus broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape”**

**Timing: 5.64 sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera brevicirris* Grube 1870.

**Q42.** **Identify the Glycera species with the following taxonomic characteristics “three papillae present numerous papillae with terminal fingernail structure with long stalk and some longitudinal ridges on nail, few digitiform papillae with straight, median longitudinal ridge and isolated, broader, oval to globular papillae without ridges. Branchia present started from 21–32 to near posterior end”**

**Timing: 4.28sec**

**Ans:** The name of the Glycera species with these characteristics is *Glycera* *cinnamomea*.

**Q43. Identify the Glycera species with the following taxonomic characteristics “Prostomium conical with 14-17 rings, having two types of proboscidal papillae 1) numerous conical papillae with 3 U-shaped ridges, 2) isolated, broader, oval to globular papillae without ridges, Two slender triangular to digitiform prechaetal lobes of about same length, Two shorter postchaetallobes; anteriorly both lobes rounded; in following parapodia notopodiallobe slightly elongated and rounded, sometimes slightly blunt triangular, slightly Ion ger than rounded neuropodiallobe, Branchia is retractile and starts from 17th to 25th parapodium near posterior end ”**

**Tinimg:3.74 sec**

**Ans:** The species that matches your description is *Glycera fallax* QUATREFAGES 1850.

**Q44. Identify the Glycera species with the following taxonomic characteristics “The specimen consist conical prostomium with 9-12 rings, bears two types of proboscidal papillae with undulating ridges and few short and oval papillae without ridges, Two slender, triangular to digitiform prechaetal lobes, One short rounded postchaetal lobe, Branchia absent”**

**Timing: 3.68sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera lancadivae* Schmarda, 1861.

**Q45. Identify the Glycera species with the following taxonomic characteristics “Prostomium with 10-12 undistinct rings, bears two types of papillae Most papillae are digitiform shapes of various and the rest of the papillae are conical shape that resemble oval shapes without any ridge lengths with undulating ridges, The notopodial prechaetal lobe remains shorter than the prechaetal lobe of the neuropodia throughout the body, Postchaetal lobe is short and rounded throughout the body, Branchia absent.”**

**Timing: 3.79sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is Glycera lapidum Quaterefages 1866.

**Q46. Identify the Glycera species with the following taxonomic characteristics “Conical prostomium with 12 rings, bears two types of proboscidal papillae one long cylindrical papillae without rings and few stout forms, the prechaetal lobes elongate, pointed and subequal and the postchaetal lobe single low, rounded, or faintly bilobed structure, dorsal cirri with ovoid structure and ventral with triangular, branchia present from 20th chaetiger onwards”.**

**Timing: 6.02sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera longipinnis* Grube, 1878.

**Q47. Identify the Glycera species with the following taxonomic characteristics “Conical prostomium with 16-21 rings, bears three types of proboscidal papillae first numerous papillae with terminal fingernail structure with long stalks with numerous V-shaped ridges and some longitudinal ridges on nail, second type are few digitiform papillae with indistinctly straight, median, longitudinal ridge and very few are isolated, broader, oval to globular papillae without ridges, Two slender triangular to digitiform prechaetal lobes of about same length, Two shorter postchaetal lobes; anteriorly both lobes rounded; in following parapodia notopodial lobe elongated and slender triangular, slightly longer than rounded neuropodial lobe, non-retractile, simple, digitiform branchia present starting from about 32nd to 54th parapodium to near posterior end”**

**Timing: 3.79sec**

**Ans:** The species you're describing based on the taxonomic characteristics provided is *Glycera natalensis* Day, 1957.

**Q48.** **Identify the Glycera species with the following taxonomic characteristics “Econgated conical prostomium with 10-11 rings, bears two types of proboscidal papillae where the most abundant papillae are conical shape with three transverse ridges and rest are oval shape papillae without ridges, Prechaetal lobe aretriangular form with abroad base in the anterior and mid-body region to digitiform in the posterior segment, postchaetal lobes are short. notopodial lobes are triangular and neuropodial lobes are rounded, Retractile digitiform branchia is present from 19-26th segments to the posterior end, distinctly visible in the mid-body segments”**

**Timing: 4.19sec**

**Ans:** The Glycera species that can be identified by these taxonomic characteristics is *Glycera nicobarica* Grube, 1866.

**Q49.** **Identify the Glycera species with the following taxonomic characteristics “two types of Proboscidal papillae present where the most abundant is conical shape with transverse ridges 11-18 and rest of the papillae are oval-shaped papillae with transverse ridges 5-9. The aileron has slightly arched base. Branchia absent. Dorsal cirrus conical to oval shape present from 3rd segments onwards, inserted near to the parapodia basis.”**

**Timing: 6.17sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera oxycephala* Ehlers, 1887.

**Q50.** **Identify the Glycera species with the following taxonomic characteristics “two types of Proboscidal papillae present where very few are ovoid forms and many are long slenderised forms without ridges. Branchia absent. The dorsal cirrus is small arises from the body wall above the parapodium and the ventral cirrus has a length of postchaetal lobe. Aileron is deeply forked and slender, the shorter limb being half the length of the longer one and united to it”**

**Timing: 3.75sec**

**Ans:** The species that can be identified by the given taxonomic characteristics is *Glycera papillosa* Grube, 1857.

**Q51.** **Identify the Glycera species with the following taxonomic characteristics “Three types of Proboscidal papillae are present where the most abundant papillae is the papillae with terminal fingernail structure with medium stalk with longitudinal ridges on the stalk rest of the papillae are short conical shape with longitudinal ridges and oval shaped without ant ridges. Non-retractile branchia present between 16-24th segments medio-dorsally on the parapodia to the posterior end dorsal cirrus starts from 3rd segment conical to oval shape placed close to parapodial base and ventral cirrus broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape”**

**Timing: 5.3sec**

**Ans:** The species that matches the given taxonomic characteristics is *Glycera posterobranchia* Hoagland, 1920.

**Q52.** **Identify the Glycera species with the following taxonomic characteristics “Two types of Proboscidal papillae present where the most abundant is bluntly conical papillae with 1-2 rings and rest are subspherical papillae without rings. Branchia present from chaetiger 12 situated on the anterior end of parapodium, with 2 to 5 branched digitiform lobes. Post chaetal lobe is superior postchaetal lobe is pointed, the inferior one is shorter and blunt”**

**Timing: 4.93sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera subaenea* Grube, 1878.

**Q53.** **Identify the Glycera species with the following taxonomic characteristics “conical prostomium with 10-12 rings, bears two types of proboscidal papillae one with numerous digitiform papillae without ridges and some isolated, oval to globular papillae, without ridges, Two slender triangular to digitiform prechaetal lobes, on anterior parapodia, Rounded postchaetal lobe, dorsal cirrus are digitiform with a slightly swollen dorso-basally, longer on anterior and parapodia, diminishing in size from middle to posterior parapodia, ventral cirrus are triangular on anterior parapodia, digitiform on middle body region and slender on posterior parapodia, branchia are non-retractile, simple slightly triangular anteriorly becoming digitiform from middle of the anterior region, and best developed in the middle body region and starts from chaetiger 15 near upper chaetal lobe”**

**Timing: 3.96sec**

**Ans:** The species that matches your description is *Glycera sphyrabrancha* Schmarda, 1861.

**Q54.** **Identify the Glycera species with the following taxonomic characteristics “Two types of Proboscidal papillae present where the most abundant is digitiform shape with the straight longitudinal median ridge and the rest are conical shape papillae without any distinct ridges. Aileron has deeply incised base. The prechaetal lobe observed to be a triangular form with an abroad base in the anterior and mid-body region to digitiform in the posterior segments. Post chaetal lobe short and rounded throughout the body segments. Dorsal cirrus is conical to oval dorsal cirrus started from the 3rd segment and placed far away from the parapodial basis. Ventral cirrus broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape. Branchia absent.”**

**Timing: 4.24sec**

**Ans:** The Glycera species that can be identified by the given taxonomic characteristics is *Glycera tesselata* Grube, 1863.

**Q55.** **Identify the Glycera species with the following taxonomic characteristics “Three types of Proboscidal papillae present where the most abundant is terminal fingernail structure with short length stalk and longitudinal ridges on the nail and the rest are digitiform shape with longitudinal ridges and oval shape without any ridges. Aileron has pointed triangular base. Non-retractile digitiform branchia present between 17-22nd segment, termino-dorsally on the parapodia to the posterior end. Dorsal cirrus from 3rd segment conical to oval shape placed close to the parapodial base and ventral cirrus broadly triangular in the anterior and mid-body regions, but in the posterior end it transforms to digitiform shape.”**

**Timing: 4.78sec**

**Ans: The Glycera species that can be identified by the given taxonomic characteristics is *Glycera tridactyla* Schmarda, 1861.**

**Q56.** **Identify the Glycera species with the following taxonomic characteristics “Two types of Proboscidal papillae present where the most abundant is conical papillae with 3 U-shaped ridges rest are isolated, broader, oval to globular papillae without ridges. Two shorter postchaetal lobes, anteriorly both lobes are rounded, in following parapodia both lobes elongated and slender triangular, of about same length. Dorsal cirrus starts from 2nd parapodium, conical to oval. Branchia retractile, 1-2 digitiform branchial rami present from 16-30th parapodium to near posterior end.”**

**Timing: 4.69sec**

**Ans:** The Glycera species that matches these taxonomic characteristics is *Glycera unicornis* Lamarck, 1818.

**Q57.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera Africana?***

**Timing: 11.38sec**

**Ans**: The taxonomic differences between Glycera species Glycera alba and Glycera africana are as follows:

Body rings: Both species have bi-annulated mid-body segments. Proboscidal papillae: Both species have three types of papillae. However, the most abundant papillae in Glycera alba have a long stalk and longitudinal ridges on the nail, while in Glycera africana, they have a medium-length stalk and longitudinal ridges on the nail. Aileron: Both species have a pointed triangular base. Parapodia: Glycera alba has parapodia consisting of two prechaetal lobes of the same length and two postchaetal lobes. Glycera africana has the first two setigers as uniramous followed by biramous parapodia. The two prechaetal lobes in Glycera africana are observed to be triangular in shape with a broad base in the anterior and mid-body region to digitiform in the posterior segments. Dorsal cirrus: Both species have dorsal cirri that start from the 3rd segment and are conical to oval-shaped, placed close to the parapodial base. Ventral cirrus: Both species have broadly triangular ventral cirri in the anterior and mid-body regions, but in the posterior end, they transform to digitiform shape. Branchia: Both species have a non-retractile digitiform branchia. In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end. In Glycera africana, the branchia is present between the 16-22nd segment termino-dorsally on the parapodia to the posterior end.Chaete: Both species have simple capillaries in notopodia and compound spinigers in neuropodia. Overall, while there are some differences in the shape and structure of the papillae, parapodia, and position of the branchia, the two species share many taxonomic characteristics.

**Q58.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera benguellana?***

**Timing: 8.99sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera benguellana are as follows:

Body rings: Glycera alba has mid-body segments that are bi-annulated, while Glycera benguellana has numerous indistinct rings.

Proboscidal papillae: Glycera alba has three types of papillae, while Glycera benguellana has two types of papillae.

Aileron: Glycera alba has a pointed triangular base, while Glycera benguellana has a blade-like aileron, with the shorter limb being a mere expansion at the base of the other.

Parapodia: The first two parapodia of Glycera alba are biramous, while those of Glycera benguellana are uniramous.

Postchaetal lobe: The postchaetal lobes of Glycera alba are short, notopodial lobes that are triangular in shape and longer than the rounded neuropodial lobes, while those of Glycera benguellana are low and rounded.

Branchia: Glycera alba has a non-retractile digitiform branchia present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while Glycera benguellana has no branchia present. Number of species: There are a total of 75 valid species of Glycera in the world, of which 21 valid species have been recorded in India so far. Glycera alba, Glycera benguellana, and Glycera unicornis are among the species recorded in India.

**Q59.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera americana?***

**Timing: 8sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera americana are as follows:

Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera americana, the mid-body segments are biannulate, and the anterior annulus is about as long as the posterior one or slightly longer.

Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera americana, there are two types of papillae.

Aileron: In Glycera alba, the aileron is pointed with a triangular base, while in Glycera americana, the aileron has a triangular base, and an interramal plate is present.

Parapodia: In Glycera alba, the parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera americana, the first two parapodia are uniramous, and the following parapodia are biramous.

Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera americana, the branchia may be present or absent and is retractable in some species.

Chaeate: In Glycera alba, there are simple capillaries in notopodia and compound spinigers in neuropodia, while in Glycera americana, notopodia feature simple capillaries, and neuropodia mostly have spinigerous compound chaetae.

**Q60.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera brevicirris?***

**Timing: 10sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera brevicirris are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera brevicirris, the anterior body segments are bi-annulated, and mid-body segments are more or less tri-annulated. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera brevicirris, there are two types of papillae. Aileron: In Glycera alba, the aileron is a pointed triangular base, while in Glycera brevicirris, the aileron has a deeply incised base. Prechaetal lobe: In Glycera alba, the short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera brevicirris, the two prechaetal lobes are observed to be of triangular form with a broad base in the anterior and mid-body region to digitiform in the posterior segments. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment conical to oval shape placed close to the parapodial base, while in Glycera brevicirris, the conical to oval dorsal cirrus appears from the 3rd segment and placed slightly away from the parapodial basis. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera brevicirris, the branchia is absent. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera brevicirris, the branchia is absent. Chaetae: In both Glycera alba and Glycera brevicirris, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q61.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera capitata?***

**Timing: 9.35sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera capitata are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera capitata, mid-body segments are more or less distinctly triannulate. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera capitata, there are two types of papillae. Parapodia: In Glycera alba, parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera capitata, the first two parapodia are uniramous, and following parapodia are biramous. Postchaetal lobe: In Glycera alba, two postchaetal lobes are present, while in Glycera capitata, only one shorter, rounded postchaetal lobe is present. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera capitata, the branchia is absent. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera capitata, the branchia is absent. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment conical to oval shape placed close to the parapodial base, while in Glycera capitata, the dorsal cirrus arises from the 3rd parapodium, oval to globular. Ventral cirrus: In Glycera alba, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape, while in Glycera capitata, the ventral cirrus is slender triangular to digitiform, usually slightly shorter than the postchaetal lobe. Chaetae: In Glycera alba, simple capillaries are present in notopodia and compound spinigers in neuropodia, while in Glycera capitata, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q62.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera cinnamomea?***

**Timing: 10.3**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera cinnamomea are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera cinnamomea, the mid-body segments are also biannulate. Proboscidal papillae: Both species have three types of papillae, but the papillae in Glycera alba are more abundant, with a terminal fingernail structure with a long stalk and longitudinal ridges on the nail. In contrast, Glycera cinnamomea has fewer papillae, with some having a straight, median longitudinal ridge. Aileron: The aileron in Glycera alba has a pointed triangular base, while in Glycera cinnamomea, it also has a pointed triangular base. Parapodia: Both species have two prechaetal lobes of the same length and two postchaetal lobes. However, the prechaetal lobes in Glycera alba are short, triangular in shape, and longer than the rounded neuropodial lobes, while in Glycera cinnamomea, they are slender, triangular to digitiform, and about the same length as the postchaetal lobes. Dorsal cirrus: The dorsal cirrus in both species starts from the 3rd segment and is conical to oval in shape. However, in Glycera alba, it is placed close to the parapodial base, while in Glycera cinnamomea, it is inserted on the body wall slightly above the parapodial base. Ventral cirrus: The ventral cirrus in Glycera alba is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to a digitiform shape. In contrast, in Glycera cinnamomea, it is slender, triangular to digitiform, and slightly shorter than the postchaetal lobes. Branchia: Both species have a non-retractile digitiform branchia. However, in Glycera alba, it is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera cinnamomea, it is present from about parapodium 21-32 to near the posterior end and is situated dorsally on parapodial bases.

**Q63.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera lapidum?***

**Timing: 8.57sec**

**Ans:** The taxonomic characteristics of Glycera alba and Glycera lapidum are not directly compared in the given context. However, the context provides information on the taxonomic characteristics of each species separately. Glycera alba has bi-annulated body rings in the mid-body segments, three types of proboscidal papillae, pointed triangular base aileron, parapodia consisting of two prechaetal lobes of the same length and two postchaetal lobes, non-retractile digitiform branchia present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, and simple capillaries in notopodia and compound spinigers in neuropodia. On the other hand, Glycera lapidum has numerous indistinct body rings, two types of proboscidal papillae, blade-like aileron, first two parapodia uniramous following parapodia biramous, no branchia present, and simple capillaries in notopodia and compound spinigers in neuropodia.

**Q64.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera longipinnis?***

**Timing: 8.01sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera longipinnis are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera longipinnis, the mid-body segments are also bi-annulated. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera longipinnis, there are two types of papillae. Aileron: In Glycera alba, the aileron is pointed triangular base, while in Glycera longipinnis, the aileron has two long slender rami, one twice the length of the other and narrowly united at the base. Parapodia: In Glycera alba, the parapodia consists of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera longipinnis, the prechaetal lobes are elongate, pointed and subequal, and the postchaetal lobes are a single low, rounded, or faintly bilobed structure. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment conical to oval shape placed close to parapodial base, while in Glycera longipinnis, the dorsal cirrus is ovoid. Ventral cirrus: In Glycera alba, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape, while in Glycera longipinnis, the ventral cirrus is triangular, much shorter than the prechaetal lobes. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera longipinnis, the branchia is present, and the filament is situated on the dorsal edge of the parapodia longer than the prechaetal lobes. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera longipinnis, the branchia is present from the 20th chaetiger onwards. Chaetae: In both Glycera alba and Glycera longipinnis, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q65.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera natalensis?***

**Timing: 9.10sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera natalensis are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera natalensis, the anterior segments are biannulate, mid-body segments are more or less distinctly triannulate, and the median region dorsally has up to 4 tubercles on each side. Proboscidal papillae: In Glycera alba, there are three types of papillae, with the most abundant papillae having a terminal fingernail structure with long stalk and longitudinal ridges on the nail. In Glycera natalensis, there are also three types of papillae, with numerous papillae having a terminal fingernail structure with long stalks with numerous V-shaped ridges and some longitudinal ridges on the nail. Parapodia: In Glycera alba, the parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes. In Glycera natalensis, the first two parapodia are uniramous, and the following parapodia are biramous. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera natalensis, the branchia is also present, but it is a non-retractile, simple, digitiform branchia. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera natalensis, the branchia starts from about 32-54th parapodium to near the posterior end. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment and is conical to oval shape placed close to the parapodial base, while in Glycera natalensis, the dorsal cirrus is relatively large and arises in the junction of the parapodium with the body. Ventral cirrus: In Glycera alba, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape. In Glycera natalensis, the ventral cirrus is slender triangular to digitiform, about as long as neuropodial postchaetal lobe. Chaetae: In both Glycera alba and Glycera natalensis, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q66.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera oxycephala?***

**Timing: 8.96sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera oxycephala are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera oxycephala, the anterior regions are bi-annulated, and mid-body segments are more or less tri-annulated. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera oxycephala, there are two types of papillae. Aileron: In Glycera alba, the aileron has a pointed triangular base, while in Glycera oxycephala, the aileron has a slightly arched base. Prechaetal lobe: In Glycera alba, the notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera oxycephala, the notopodial and neuropodial prechaetal lobes are of similar length. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera oxycephala, the branchia is absent. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera oxycephala, the branchia is absent. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment conical to oval shape placed close to the parapodial base, while in Glycera oxycephala, the dorsal cirrus is conical to oval shape present from 3rd segments onwards, inserted near to the parapodia basis. Ventral cirrus: In Glycera alba, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape, while in Glycera oxycephala, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape. Chaetae: In both Glycera alba and Glycera oxycephala, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q67.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera papillosa?***

**Timing: 10.57sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera papillosa are as follows: Body Rings: Glycera alba has mid-body segments that are bi-annulated, while Glycera papillosa has mid-body segments that are only annulated. Proboscidal Papillae: Glycera alba has three types of papillae, while Glycera papillosa has only two types of papillae. Aileron: Glycera alba has a pointed triangular base aileron, while Glycera papillosa has a deeply forked and slender aileron. Parapodia: Glycera alba has two prechaetal lobes of the same length and two postchaetal lobes, while Glycera papillosa has a superior prechaetal lobe that is small and an inferior one that is large and pointed, with a single rounded postchaetal lobe. Dorsal Cirrus: Glycera alba has a conical to oval-shaped dorsal cirrus that is placed close to the parapodial base, while Glycera papillosa has a small dorsal cirrus that arises from the body wall above the parapodium. Branchia: Glycera alba has a non-retractile digitiform branchia that is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while Glycera papillosa does not have a branchia. Position of Branchia: Glycera alba has a branchia that is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while Glycera papillosa does not have a branchia. Chaetae: Both Glycera alba and Glycera papillosa have simple capillaries in notopodia and compound spinigers in neuropodia.

**Q68.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera posterobranchia?***

**Timing: 10 Sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera posterobranchia are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera posterobranchia, the mid-body segments are bi-annulated. Proboscidal papillae: Glycera alba has three types of papillae, while Glycera posterobranchia has three types of papillae, with the most abundant papillae having a terminal fingernail structure with a medium stalk with longitudinal ridges on the stalk. Aileron: Both species have a pointed triangular base aileron. Parapodia: In Glycera alba, the parapodia consists of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera posterobranchia, the first two parapodia are uniramous, and the following parapodia are biramous. Prechaetal lobe: In Glycera alba, the short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera posterobranchia, two prechaetal lobes are observed to be with a triangular form with a broad base in the anterior and mid-body region to digitiform in the posterior segments. Postchaetal lobe: In Glycera alba, the two postchaetal lobes are short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera posterobranchia, the short, notopodial lobes are triangular in shape, whereas neuropodial lobes are rounded. Dorsal cirrus: Both species have a dorsal cirrus that starts from the 3rd segment conical to oval shape placed close to the parapodial base. Ventral cirrus: Both species have a broadly triangular ventral cirrus in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera posterobranchia, the non-retractile branchia is present between the 16-24th segment medio-dorsally on the parapodia to the posterior end. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera posterobranchia, the branchia is present between the 16-24th segment medio-dorsally on the parapodia to the posterior end. Chaetae: Both species have simple capillaries in notopodia and compound spinigers in neuropodia.

**Q69.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera subaenea?***

**Timing: 8.41sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera subaenea are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera subaenea, the anterior segments are bi-annulated, and mid-body segments are more or less tri-annulated. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera subaenea, there are two types of papillae. Aileron: In Glycera alba, the aileron is pointed triangular base, while in Glycera subaenea, there is one well-developed prong and the other prong short and completely united to the first by an oblique shelf. Parapodia: In Glycera alba, the parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera subaenea, the first two parapodia are uniramous, and following parapodia are biramous. Dorsal cirrus and ventral cirrus: Glycera alba has both dorsal and ventral cirrus, while Glycera subaenea does not have either. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera subaenea, the branchia is present from chaetiger 12 situated on the anterior end of the parapodium, with 2 to 5 branched digitiform lobes. Chaetae: Both Glycera alba and Glycera subaenea have simple capillaries in notopodia and compound spinigers in neuropodia.

**Q70.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera tesselata?***

**Timing: 10 sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera tesselata are as follows: Body rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera tesselata, the anterior segments are bi-annulated, and mid-body segments are more or less tri-annulated. Proboscidal papillae: In Glycera alba, there are three types of papillae, while in Glycera tesselata, there are two types of papillae. Aileron: In Glycera alba, the aileron is a pointed triangular base, while in Glycera tesselata, the aileron has a deeply incised base. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera tesselata, the branchia is absent. Position of Branchia: In Glycera alba, the branchia is present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while in Glycera tesselata, the branchia is absent. Dorsal cirrus: In Glycera alba, the dorsal cirrus starts from the 3rd segment conical to oval shape placed close to the parapodial base, while in Glycera tesselata, the dorsal cirrus is conical to oval dorsal cirrus started from the 3rd segment and placed far away from the parapodial basis. Ventral cirrus: In Glycera alba, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape, while in Glycera tesselata, the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape. Prechaetal lobe: In Glycera alba, the short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera tesselata, the prechaetal lobe observed to be a triangular form with an abroad base in the anterior and mid-body region to digitiform in the posterior segments. Postchaetal lobe: In Glycera alba, two post chaetal lobes are present, and the postchaetal lobes are short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera tesselata, the postchaetal lobe is short and rounded throughout the body segments. Chaetae: In Glycera alba, there are simple capillaries in notopodia and compound spinigers in neuropodia, while in Glycera tesselata, there are simple capillaries in notopodia and compound spinigers in neuropodia.

**Q71.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera tridactyla?***

**Timing: 8.32sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera tridactyla are as follows: Proboscidal papillae: Both species have three types of papillae, but in Glycera alba, the most abundant papillae have a terminal fingernail structure with a long stalk and longitudinal ridges on the nail, while in Glycera tridactyla, the most abundant papillae have a terminal fingernail structure with a short length stalk and longitudinal ridges on the nail. Parapodia: In Glycera alba, the parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes, while in Glycera tridactyla, the first two parapodia are uniramous, and the following parapodia are biramous. Prechaetal lobe: In Glycera alba, the short, notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes, while in Glycera tridactyla, the two prechaetal lobes are observed to be with a triangular form with a broad base in the anterior and mid-body region to digitiform in the posterior segments. Branchia: In Glycera alba, the branchia is present and is non-retractile digitiform branchia, while in Glycera tridactyla, the non-retractile digitiform branchia is present between the 17-22nd segment, termino-dorsally on the parapodia to the posterior end. Chaetae: In both species, simple capillaries are present in notopodia and compound spinigers in neuropodia.

**Q72.** **What are the taxonomic differences between Glycera species *Glycera alba and Glycera unicornis?***

**Timing: 7.34sec**

**Ans:** The taxonomic differences between Glycera species Glycera alba and Glycera unicornis are as follows: Body Rings: In Glycera alba, the mid-body segments are bi-annulated, while in Glycera unicornis, the mid-body segments are also bi-annulated, but the anterior annulus is about as long as the posterior one or slightly longer. Proboscidal Papillae: In Glycera alba, there are three types of papillae. The most abundant papillae are terminal fingernail structures with long stalks and longitudinal ridges on the nail. In Glycera unicornis, there are two types of papillae. The first type is numerous conical papillae with three U-shaped ridges, and the second type is isolated, broader, oval to globular papillae without ridges. Aileron: In Glycera alba, the aileron has a pointed triangular base, while in Glycera unicornis, the aileron has a triangular base. Parapodia: In Glycera alba, the parapodia consist of two prechaetal lobes of the same length and two postchaetal lobes. In Glycera unicornis, the first two parapodia are uniramous, and the following parapodia are biramous. Prechaetal Lobe: In Glycera alba, the short notopodial lobes are triangular in shape and longer than the rounded neuropodial lobes. In Glycera unicornis, there are two slender triangular to digitiform prechaetal lobes of about the same length, and both lobes become slightly slimmer in posterior parapodia. In the last parapodia, the notopodial lobe is shorter than the neuropodial one. Branchia: In Glycera alba, the branchia is present and is a non-retractile digitiform branchia. In Glycera unicornis, it is not mentioned whether the branchia is present or absent. Chaete: In Glycera alba, the notopodia have simple capillaries, and the neuropodia mostly have spinigerous compound chaetae. In Glycera unicornis, the notopodia also have simple capillaries, and the neuropodia have compound spinigers.

**Q73.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera Africana?***

**Timing: 6.92sec**

**Ans:** Both Glycera alba and Glycera africana have mid-body segments that are bi-annulated, three types of proboscidal papillae, a pointed triangular base aileron, present and non-retractile digitiform branchia, and simple capillaries in notopodia and compound spinigers in neuropodia chaete. They also have broadly triangular ventral cirri in the anterior and mid-body regions, which transform to digitiform shape in the posterior end. However, there are also some differences in their parapodia and prechaetal lobes. Glycera alba has parapodia consisting of two prechaetal lobes of the same length and two postchaetal lobes, while Glycera africana has the first two setigers as uniramous followed by biramous parapodia. Additionally, the two prechaetal lobes of Glycera africana are observed to be triangular in shape with a broad base in the anterior and mid-body region, while in Glycera alba, they are short and notopodial lobes that are triangular in shape and longer than the rounded neuropodial lobes.

**Q74.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera benguellana?***

**Timing: 3.21sec**

**Ans:** Both Glycera alba and Glycera benguellana have simple capillaries in notopodia and compound spinigers in neuropodia. They also both have prechaetal lobes that are triangular in shape and longer than the rounded neuropodial lobes. However, they differ in other taxonomic characteristics such as the presence/absence of branchia, the shape of their proboscidal papillae, and the number and shape of their body rings.

**Q75.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera americana?***

**Timing: 4.24sec**

**Ans:** Both Glycera alba and Glycera americana have mid-body segments that are biannulate, and both have proboscidal papillae of different types. They also have ailerons with triangular bases and parapodia with prechaetal and postchaetal lobes. Additionally, both species have simple capillaries in notopodia and compound spinigers in neuropodia. However, there are also some differences between the two species, such as the shape and position of their branchiae and the shape of their dorsal cirrus and ventral cirrus.

**Q76.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera brevicirris?***

**Timing: 3.18seec**

**Ans:** Both Glycera alba and Glycera brevicirris have simple capillaries in notopodia and compound spinigers in neuropodia as their chaetae. They also both have a dorsal cirrus that starts from the 3rd segment and is conical to oval in shape, and a broadly triangular ventral cirrus in the anterior and mid-body regions that transforms to a digitiform shape in the posterior end. However, they differ in their body ring structure, proboscidal papillae, aileron shape, and presence/absence of branchia.

**Q77.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera capitata?***

**Timing: 3.85sec**

**Ans:** Both Glycera alba and Glycera capitata have simple capillaries in notopodia and compound spinigers in neuropodia. They also have ailerons with pointed triangular bases and parapodia with prechaetal lobes that are triangular to digitiform in shape. Additionally, both species have dorsal cirri that start from the 3rd segment and are oval to globular in shape. However, there are also some differences between the two species, such as the number and type of proboscidal papillae and the presence or absence of branchiae.

**Q78.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera cinnamomea?***

**Timing: 3.09sec**

**Ans:** Both Glycera alba and Glycera cinnamomea have mid-body segments that are bi-annulated, three types of proboscidal papillae, ailerons with pointed triangular bases, parapodia with two prechaetal lobes and two postchaetal lobes, and simple capillaries in notopodia and compound spinigers in neuropodia. However, they differ in the shape and number of their papillae, the shape of their dorsal and ventral cirri, the shape and position of their branchiae, and the shape of their postchaetal lobes.

**Q79.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera lapidum?***

**Timing: 3.44sec**

**Ans:** The given context provides the taxonomic characteristics of Glycera species Glycera alba and Glycera lapidum. However, it does not provide any information about the taxonomic similarities between the two species.

**Q80.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera longipinnis?***

**Timing: 3 sec**

**Ans:** Both Glycera alba and Glycera longipinnis have mid-body segments that are bi-annulated, two types of proboscidal papillae, simple capillaries in notopodia and compound spinigers in neuropodia, and a present branchia. However, they differ in their aileron, parapodia, prechaetal and postchaetal lobes, and dorsal and ventral cirri.

**Q81.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera natalensis?***

**Timing: 3.63 sec**

**Ans:** Both Glycera alba and Glycera natalensis have similar taxonomic characteristics such as the presence of three types of proboscidal papillae, aileron with a triangular base, parapodia with two prechaetal and two postchaetal lobes, and the presence of simple capillaries in notopodia and compound spinigers in neuropodia. They also have non-retractile, simple, digitiform branchia present in a similar position starting from the 18-23rd parapodium in Glycera alba and from the 32-54th parapodium in Glycera natalensis to near the posterior end.

**Q82.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera oxycephala?***

**Timing: 3.79sec**

**Ans:** The taxonomic similarities between Glycera species Glycera alba and Glycera benguellana are that they both belong to the genus Glycera, have numerous body rings, and have simple capillaries in notopodia and compound spinigers in neuropodia. However, they differ in their proboscidal papillae, aileron, presence of branchia, and shape and size of their prechaetal and postchaetal lobes. Glycera alba has three types of proboscidal papillae, a pointed triangular base aileron, a present non-retractile digitiform branchia, and short triangular prechaetal lobes and rounded postchaetal lobes. On the other hand, Glycera benguellana has two types of proboscidal papillae, a blade-like aileron, no branchia, and two triangular prechaetal lobes with a slightly shorter superior one in the middle of the body and in posterior segments and low and rounded postchaetal lobes.

**Q83.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera papillosa?***

**Timing: 3.2sec**

**Ans:** Both Glycera alba and Glycera papillosa have simple capillaries in notopodia and compound spinigers in neuropodia. They also both have a dorsal cirrus that starts from the 3rd segment and a ventral cirrus that is broadly triangular in the anterior and mid-body regions, but transforms to a digitiform shape in the posterior end. However, they differ in their proboscidal papillae, with Glycera alba having three types of papillae while Glycera papillosa has numerous digitiform ones with 10-16 rings. Additionally, Glycera alba has a non-retractile digitiform branchia present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while Glycera papillosa has no branchia present.

**Q84.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera posterobranchia?***

**Timing: 3.33sec**

**Ans:** Both Glycera alba and Glycera posterobranchia have mid-body segments that are bi-annulated, three types of proboscidal papillae, pointed triangular base ailerons, parapodia with two prechaetal lobes and short, triangular notopodial lobes and rounded neuropodial lobes in postchaetal lobes, dorsal cirrus starting from the 3rd segment conical to oval shape placed close to parapodial base, broadly triangular ventral cirrus in the anterior and mid-body regions, and simple capillaries in notopodia and compound spinigers in neuropodia chaetae. They also both have non-retractile branchia present, with the position of the branchia being between the 16-24th segment medio-dorsally on the parapodia to the posterior end in Glycera posterobranchia and between the 18-23rd segment termino-dorsally on the parapodia to the posterior end in Glycera alba.

**Q85.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera subaenea?***

**Timing: 3.99sec**

**Ans:** Both Glycera alba and Glycera subaenea have simple capillaries in notopodia and compound spinigers in neuropodia. They also both have branchiae present, with Glycera alba having a non-retractile digitiform branchia located between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, and Glycera subaenea having branchiae with 2 to 5 branched digitiform lobes located from chaetiger 12 situated on the anterior end of parapodium.

**Q86.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera tesselata?***

**Timing: 4.21sec**

**Ans:** Both Glycera alba and Glycera tesselata have simple capillaries in notopodia and compound spinigers in neuropodia as their chaetae. They also both have a conical to oval dorsal cirrus that starts from the 3rd segment and is placed far away from the parapodial basis. However, they differ in their proboscidal papillae, with Glycera alba having three types of papillae while Glycera tesselata has only two types. Additionally, Glycera alba has a non-retractile digitiform branchia present between the 18-23rd segment termino-dorsally on the parapodia to the posterior end, while Glycera tesselata has no branchia present.

**Q87.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera tridactyla?***

**Timing: 2.89sec**

**Ans:** Both Glycera alba and Glycera tridactyla have mid-body segments that are bi-annulated, three types of proboscidal papillae, a pointed triangular base aileron, parapodia with short, triangular notopodial lobes and longer, rounded neuropodial lobes, conical to oval-shaped dorsal cirri starting from the 3rd segment, broadly triangular ventral cirri in the anterior and mid-body regions, and non-retractile digitiform branchiae present between the 17-23rd segment termino-dorsally on the parapodia to the posterior end. They also have simple capillaries in notopodia and compound spinigers in neuropodia.

**Q88.** **What are the taxonomic similarities between Glycera species *Glycera alba and Glycera unicornis?***

**Timing: 4.37sec**

**Ans:** Both Glycera alba and Glycera unicornis belong to the same genus, Glycera. They both have elongated bodies with tapered ends and bi-annulated mid-body segments. They also both have a long, cylindrical, club-shaped, muscular proboscis with numerous papillae, and specialized structures on the posterior sides of the papillae. Additionally, both species have parapodia with two prechaetal lobes and one or two postchaetal lobes, and notopodia and neuropodia with a single acicula. However, there are also differences between the two species in terms of their specific characteristics, such as the types of proboscidal papillae they have and the shape of their prechaetal lobes.

**Q89.** **Give the name of all species with three proboscidal papillae?**

**Timing: 2.52sec**

**Ans:** The Glycera species that have three types of Proboscidal papillae are:

*Glycera posterobranchia* Hoagland, 1920

*Glycera tridactyla Schmarda*, 1861

*Glycera alba* O F Müller, 1776

*Glycera africana* Arwidsson, 1899

*Glycera cinnamomea* GRUBE 1874

*Glycera natalensis* Day, 1957

**Q90.** **The species of Glycera that have two types of Proboscidal papillae are:**

**Timing: 2.64sec**

**Ans:** *Glycera papillosa*

*Glycera benguellana*

*Glycera oxycephala*

*Glycera subaenea*

*Glycera longipinnis*

*Glycera brevicirris*

*Glycera tesselata*

*Glycera lapidum*

*Glycera nicobarica*

**Q91.** **In which Glycera species Branchia is present*?***

**Timing: 3.04sec**

**Ans:** The species of Glycera that have Branchia present are:

*Glycera alba*

*Glycera subaenea*

*Glycera sphyrabrancha*

*Glycera tridactyla*

*Glycera posterobranchia*

*Glycera longipinnis*

*Glycera fallax*

*Glycera africana*

**Q92.** **What are the common taxonomic characteristics in all the Glycera species*?***

**Timing: 1.87**

**Ans:** The taxonomic characteristics that are common to all Glycera species are: numerous elongated segments that taper at both ends, bi- or triannulate body segments, conical prostomium, long and cylindrical proboscis with numerous papillae, four hook-like jaws at the tip of the proboscis, parapodia with two prechaetal and one or two postchaetal lobes, notopodia with simple capillaries and neuropodia with spinigerous compound chaetae, and a pair of slender anal cirri on the pygidium. However, branchiae may be present or absent and are retractable in some species. Different species may have different types of proboscidal papillae.

**Q93.** **Key taxonomic characters of Glycera family?**

**Timing: 2.65sec**

**Ans:** The key taxonomic characteristics of the Glycera family, also known as Glyceridae, include:

Body: The body of the genus Glycera is characterized by numerous elongated segments that taper at both ends. These segments are bi- or triannulate.

Prostomium: The prostomium is conical in shape, mostly pointed, and distinctly annulated. The anterior-most annulus has four appendages, with the anterior pair situated termino-aterally and the posterior pair more dorsolateral. The posterior-most annulus has one pair of nuchal organs, but no eyes are present.

Proboscis: The proboscis is long, cylindrical, club-shaped, muscular, and densely covered with numerous papillae. These papillae bear specialized structures on their posterior sides. The tip of the everted proboscis has four dark, hook-like curved jaws, each with a rod-like, more or less triangular or deeply incised supportive aileron.

Proboscidal Papillae: The surface of the proboscis is adorned with a specialized structure known as "Proboscidal Papillae". These papillae are essentially small, raised projections that can serve various purposes, such as tactile sensing or aiding in prey capture.

Cirri: Polychaete annelids are characterized by the presence of appendages known as "cirri". These structures, which resemble tentacles or filaments, serve a variety of functions, including sensory roles, reproduction, and respiration. Cirri are an important taxonomic feature that allows for the differentiation between species or even families of polychaetes.

Postchaetal Lobe: The postchaetal lobe's shape, size, and other characteristics can vary among species, making it a distinguishing feature.

Chaetae: The chaetae are simple capillaries in notopodia and compound spinigers in neuropodia.

Distribution: The Glyceridae family is present in a vast array of environments, ranging from intertidal to abyssal depths. They are easily recognizable by their distinct reddish coloration and their four dark jaws with ailerons at the end of their proboscis.

**Q94.** **Write a short note on body ring of Glycera*?***

**Timing: 1.28sec**

**Ans:** The body ring structure of Glycera varies depending on the species. Glycera americana has mid-body segments that are biannulate, with the anterior annulus about as long as the posterior one or slightly longer. Glycera benguellana has numerous indistinct rings. Glycera subaenea has anterior segments that are bi-annulated, while mid-body segments are more or less tri-annulated. Glycera unicornis has mid-body segments that are biannulate, with the anterior annulus about as long as the posterior one or slightly longer.

**Q95.** **Write a short note on Proboscidal papillae of Glycera*?***

**Timing: 1.23sec**

**Ans:** Different species of Glycera possess different types of Proboscidal papillae or different combinations of them. Glycera alba has three types of papillae: 1) terminal fingernail structure with long stalk and longitudinal ridges on the nail, 2) digitiform shape papillae with longitudinal ridges, and 3) oval shape papillae without any ridges. Glycera oxycephala has two types of papillae: 1) conical shape with transverse ridges 11-18, and 2) oval-shaped papillae with transverse ridges 5-9. Glycera posterobranchia has three types of papillae: 1) papillae with terminal fingernail structure with medium stalk with longitudinal ridges on the stalk, 2) short conical shaped papillae with longitudinal ridges, and 3) oval shaped papillae without any ridges.

**Q96.** **Write a short note on Aileron of Glycera*?***

**Timing: 3.59sec**

**Ans:** The Aileron of Glycera is a structure that is present on the parapodia of the species. It varies among different species in terms of its shape and size. In Glycera alba, it is a pointed triangular base, in Glycera benguellana, it is blade-like with the shorter limb being a mere expansion at the base of the other, in Glycera papillosa, it is deeply forked and slender, and in Glycera longipinnis, it has two long slender rami, one twice the length of the other and narrowly united at the base.

**Q97.** **Write a short note on Prechaetal lobe of Glycera*?***

**Timing: 1.98sec**

**Ans:** The Prechaetal lobe is a structure that is often present on the parapodia of polychaete annelids, including Glycera. It is located in front of the chaetal row and can take on different shapes and sizes, making it an important morphological feature in identifying different species within the Glyceridae family. There are different types of prechaetal lobes in Glycera, depending on the species. Taxonomists studying these worms often use observations of prechaetal lobes along with other morphological features to accurately identify species.

**Q98.** **Write a short note on Postchaetal lobe of Glycera*?***

**Timing: 5.73sec**

**Ans:** The postchaetal lobe is a part of the parapodia, which are the fleshy outgrowths located on each body segment of polychaete annelids in the Glyceridae family. It is situated behind the chaetal row and can be a crucial feature in the taxonomy of the Glyceridae family and many polychaetes. The shape, size, and other characteristics of the postchaetal lobe can vary among species, making it a distinguishing feature. There are six different forms of the postchaetal lobes, including simple, elongated, branched, lamellate, reduced, and serrated. Taxonomists use a combination of these morphological characteristics to accurately identify species within the Glyceridae family, as relying on a single characteristic can lead to misidentification.

**Q99.** **Write a short note on Cirrus of Glycera*?***

**Timing: 4.87sec**

**Ans:** The cirrus of Glycera is a sensory appendage that arises from the body wall above the parapodium. It varies among different species in terms of size, shape, and position. In Glycera benguellana, the dorsal cirrus is relatively large and arises in the junction of the parapodium with the body, while the ventral cirrus is absent. In Glycera papillosa, the dorsal cirrus is small and arises from the body wall above the parapodium, while the ventral cirrus has a length of postchaetal lobe. In Glycera alba, the dorsal cirrus starts from the 3rd segment and is conical to oval shape placed close to the parapodial base, while the ventral cirrus is broadly triangular in the anterior and mid-body regions, but in the posterior end, it transforms to digitiform shape. In Glycera capitata, the dorsal cirrus arises from the 3rd parapodium and is oval to globular, while the ventral cirrus is slender triangular to digitiform, usually slightly shorter than the postchaetal lobe.

**Q100. Write a short note on Branchia of Glycera*?***

**Timing: 7.10sec**

**Ans:** The branchia, or gills, in the genus Glycera can vary between species. In some species, such as Glycera longipinnis and Glycera alba, the branchia is present and can be filamentous or digitiform in shape. The branchia is usually situated on the dorsal edge of the parapodia and can be longer than the prechaetal lobes. The position of the branchia can also vary, often appearing from a certain chaetiger onwards.

In other species, such as *Glycera brevicirris* and *Glycera oxycephala*, the branchia is absent. In *Glycera americana*, the branchia is retractile and bush-like when completely developed and everted. In *Glycera natalensis*, the branchia is non-retractile and simple, appearing from about the 32nd to 54th parapodium to near the posterior end. It's important to note that the presence, absence, and characteristics of the branchia can be key features in identifying different species within the Glycera genus.

**Q101.** **Write a short note on Chaete of Glycera*?***

**Timing: 1.45sec**

**Ans:** The chaetae in Glycera species are simple capillaries in notopodia and compound spinigers in neuropodia.

**Q102. Ecological importance of polychaetes?**

**Timing: 5.21s**

**Ans:** Polychaetes play a fundamental role in the functioning of the marine ecosystem by providing several ecological services such as bioturbation, remineralization, oxygenation, bioengineering, food for other organisms, and serving as ecological indicators. They are the most diverse group among soft-bottom macrobenthos with a total of 11,456 species belonging to 1,417 genera recorded to date. The interaction between polychaetes and sediment is important for the ecosystem functioning in general. Polychaete associated with other macrobenthos forms a complex food web in the benthic habitat. The wide range of adaptation of polychaetes to environmental changes makes them suitable for assessing benthic community health.

**Q103. Considering the ecological adaptability of Polychaetes, contrast the environmental conditions of intertidal regions and deep hydrothermal vents and explain how these conditions influence the morphological and physiological adaptations of Polychaetes found in these habitats.**

**Timing. 10.39s**

**Ans.**  The environmental conditions of intertidal regions and deep hydrothermal vents have a significant impact on the morphological and physiological adaptations of Polychaetes found in these habitats. Polychaetes found in intertidal regions have to deal with the challenges of exposure to air during low tide, changes in temperature, and salinity fluctuations. These conditions have led to the evolution of morphological and physiological adaptations such as the ability to burrow quickly into the sediment, the development of mucus to prevent desiccation, and the ability to tolerate a wide range of salinities. On the other hand, Polychaetes found in deep hydrothermal vents have to deal with high temperatures, high pressure, and low oxygen levels. These conditions have led to the evolution of morphological and physiological adaptations such as the ability to tolerate high temperatures, the development of symbiotic relationships with chemosynthetic bacteria, and the ability to extract oxygen from the surrounding water. Overall, the wide range of adaptation of Polychaetes to environmental changes makes them suitable for assessing benthic community health.

**Q104. Discuss the role of Polychaetes in benthic food webs, emphasizing their interaction with both macrobenthos and meiobenthos. How do these interactions facilitate energy transfer and nutrient cycling in marine ecosystems?**

**Timing. 9.65s**

**Ans:** Polychaetes play an important role in the functioning of marine ecosystems by providing several ecological services such as bioturbation, remineralization, oxygenation, bioengineering, food for other organisms, and ecological indicators. Polychaetes interact with both macrobenthos and meiobenthos, forming a complex food web in the benthic habitat. Meiobenthos such as copepods, other small crustaceans, nematodes, and other groups are known to have fed on juveniles of macrobenthos, and macrobenthos are known to have fed on meiobenthos. The wide range of adaptation of polychaetes to environmental changes makes them suitable for assessing benthic community health.

**Q105. Analyze the factors that contribute to the high diversity of Polychaetes (over 11,456 species recorded). How do environmental variables, seasonal changes, hydrodynamic pressure, and anthropogenic activities influence the distribution and diversity of these species?**

**Timing. 9.64s**

**Ans.** Environmental variables, seasonal changes, hydrodynamic pressure, and anthropogenic activities can all influence the distribution and diversity of Polychaetes. For example, changes in water temperature, salinity, and oxygen levels can affect the survival and reproduction of Polychaetes. Seasonal changes can also impact their distribution and abundance, as some species may be more active during certain times of the year. Hydrodynamic pressure, such as waves and currents, can affect the sediment where Polychaetes live and feed, which can in turn affect their distribution and abundance. Anthropogenic activities, such as pollution and habitat destruction, can also have negative impacts on Polychaete populations. Overall, the wide range of adaptations of Polychaetes to environmental changes makes them suitable for assessing benthic community health.

**Q106. Polychaetes provide several ecological services. Discuss the processes and significance of bioturbation, remineralization, and oxygenation in the context of benthic habitat health and ecosystem functioning.**

**Timing. 9.49s**

**Ans**. Polychaetes play a fundamental role in the functioning of the marine ecosystem by providing several ecological services such as bioturbation, remineralization, oxygenation, bioengineering, food for other organisms, ecological indicator, etc. Bioturbation is the process of mixing and reworking of sediments by burrowing organisms, which enhances sediment stability, nutrient cycling, and oxygenation. Polychaetes are known to be important bioturbators, and their interaction with sediment is important for the ecosystem functioning in general. Remineralization is the process of breaking down organic matter into inorganic nutrients, which can be used by other organisms. Polychaetes are known to play a significant role in remineralization by consuming organic matter and excreting inorganic nutrients. Oxygenation is the process of increasing the oxygen content of sediments, which is important for the survival of benthic organisms. Polychaetes are known to enhance oxygenation by burrowing and ventilating sediments. The wide range of adaptation of polychaetes to environmental changes makes them suitable for assessing benthic community health.

**Q107. The Glyceridae family is known for its elongated, tubular members. Discuss the environmental pressures and evolutionary mechanisms that might have led to this particular body plan within this family. How does this morphology benefit them in their varied environments?**

**Timing. 8.87s**

**Ans.** II is difficult to determine the exact environmental pressures and evolutionary mechanisms that led to the elongated, tubular body plan of the Glyceridae family. However, this body plan is likely an adaptation to their benthic lifestyle, allowing them to move through sediment and burrow into the substrate. The numerous bi- or triannulate segments and tapered body shape may also aid in locomotion and maneuverability. The long, muscular, and eversible proboscis is used for prey capture and may have evolved as a response to the need for efficient feeding in their benthic environment. The presence of branchiae, which aid in gas exchange, is also likely an adaptation to their benthic lifestyle. Overall, the morphology of the Glyceridae family allows them to thrive in a variety of environments, ranging from intertidal to abyssal depths, and provides them with several ecological benefits such as bioturbation, remineralization, oxygenation, bioengineering, and food for other organisms.

**Q108. Polychaetes are considered suitable for assessing benthic community health. Propose a detailed methodology for using Polychaetes as ecological indicators, considering their wide range of adaptation to environmental changes.**

**Timing. 12.62s**

**Ans.** Polychaetes can be used as ecological indicators due to their sensitivity to environmental changes and their role in the functioning of marine ecosystems. A detailed methodology for using polychaetes as ecological indicators would involve the following steps:

1. Sampling: Collecting polychaete specimens from different locations and habitats, using appropriate sampling methods such as coring, dredging, or trawling.
2. Identification: Identifying the collected specimens to the species level, using taxonomic keys and expert knowledge.
3. Abundance and diversity analysis: Analyzing the abundance and diversity of polychaete species in each location, using appropriate statistical methods such as species richness, Shannon diversity index, and evenness index.
4. Environmental variables analysis: Measuring and analyzing the environmental variables in each location, such as water temperature, salinity, pH, dissolved oxygen, sediment grain size, organic matter content, and pollution levels.
5. Correlation analysis: Examining the correlation between the abundance and diversity of polychaete species and the environmental variables, using appropriate statistical methods such as regression analysis and correlation coefficients.
6. Ecological status assessment: Assessing the ecological status of each location based on the abundance and diversity of polychaete species and the environmental variables, using appropriate ecological indices such as the AMBI (AZTI's Marine Biotic Index) and the BOPA (Benthic Opportunistic Polychaete Analysis).
7. Interpretation and reporting: Interpreting the results of the analysis and reporting the findings in a clear and concise manner, using appropriate visual aids such as graphs, tables, and maps.

Overall, using polychaetes as ecological indicators requires a multidisciplinary approach that integrates taxonomic, ecological, and environmental knowledge and methods.

**Q109. Given the vast number of species and genera of Polychaetes, discuss the challenges taxonomists face in identifying and classifying new species within this group. How do molecular techniques aid in this process?**

**Timing. 7.03s**

**Ans.** The reference materials do not provide a direct answer to your question. However, I can provide some information that may be relevant. According to Pamungkas et al. (2019), the discovery of new polychaete species is still ongoing, and molecular techniques have been useful in identifying and classifying new species. The authors suggest that the use of molecular techniques, such as DNA barcoding, can aid in the identification of cryptic species (species that are morphologically similar but genetically distinct) and can help to resolve taxonomic uncertainties. However, the authors also note that the use of molecular techniques should be combined with traditional morphological methods to ensure accurate species identification and classification.

**Q110. Describe the key morphological features used in the taxonomic identification of Polychaetes. How do these features vary across different genera within the family Glyceridae, and what are the potential evolutionary reasons for this variation?**

**Timing. 16.22s**

**Ans.** Polychaetes are identified based on various morphological features, including the shape and size of the postchaetal lobe, the presence and arrangement of cirri, and the type of prechaetal lobe. These features can vary significantly across different genera within the Glyceridae family. For example, the postchaetal lobe can take on different forms, including simple, elongated, branched, lamellate, reduced, and serrated. Similarly, the cirri can be simple, branched or bifurcated, foliaceous, papillated, setose, ventral, or dorsal. The prechaetal lobe can also vary in shape and size, with five different types observed in Glyceridae: simple or rounded, elongated or finger-like, branched or bifurcated, serrated or fringed, and reduced.

The variation in these morphological features is likely due to evolutionary pressures, such as adaptation to different environments and ecological niches. For example, the shape and arrangement of cirri may be influenced by the need to sense the environment, locate prey, or avoid predators. Similarly, the shape and size of the postchaetal lobe and prechaetal lobe may be influenced by the need to move through different substrates or to protect against predators. Overall, the variation in these morphological features reflects the diversity of ecological roles and adaptations within the Glyceridae family and other polychaete annelids.

**Q111. What is the common name of the Glyceridae family?**

**Timing: 3.97s**

**Ans.** The Glyceridae family is commonly referred to as beak-thrower worms or bloodworms.

**Q112. who described the Glyceridae?**

**Timing. 4.49s**

**Ans**. The Glyceridae family was described by Adolf Eduard Grube in 1850 in his work "Die Familien der Anneliden".

**Q113. What makes Glycerids different from other species of Polychaetes?**

**Timing: 8.11s**

**Ans**. Glycerids, also known as beak-thrower worms or bloodworms, can be distinguished from other species of polychaetes by their long, muscular, and eversible proboscis and their pointed, annulated prostomium. They also have a distinct reddish coloration and four dark jaws with ailerons at the end of their proboscis. Additionally, Glycerids do not possess eyes. Goniadids, which are closely related to Glycerids, differ in morphological characteristics such as boasting iridescent integuments and a ring of macro- and micrognaths.

**Q114. How Polychaetes interact with its environment?Give references for the statements**

**Timing: 8.78s**

**Ans**. Polychaetes are soft-bodied marine Annelids with bristle-like parapodia, living in tubes and burrows in the sand floating freely on the surface or crawling on the surface of the sediment. They can be found from the intertidal regions to the deep hydrothermal vents and are exhibited in all marine habitats. Polychaetes are the most diverse group among soft-bottom macrobenthos with a total of 11,456 species belonging to 1,417 genera recorded to date. The interaction between polychaetes and sediment is important for the ecosystem functioning in general. Polychaete associated with other macrobenthos forms a complex food web in the benthic habitat. Meiobenthos such as copepods, other small crustaceans, nematodes, and other groups are known to have fed on juveniles of macrobenthos, and macrobenthos are known to have fed on meiobenthos. The wide range of adaptation of polychaetes to environmental changes makes them suitable for assessing benthic community health. These statements are supported by the following references: Fauchald & Rouse (1997), Hutchings (2000), Hutchings & Kupriyanova (2015), Pamungkas et al. (2019), Donadi et al. (2015), Kristensen et al. (2012), Snelgrove (1998), Giménez et al. (2010), Diaz-Castañeda & Reish (2009), and Warwick et al. (1990).

**Q115. Explain the jaw structure of Glyceridae?**

**Timing. 4.12s**

**Ans**. The tip of the everted proboscis of the genus Glycera has four dark, hook-like curved jaws, each with a rod-like, more or less triangular or deeply incised supportive aileron.

**Q116. Which family is closely related to Glyceridae? How can we distinguish them?**

**Timing. 9.42s**

**Ans**. The family closely related to Glyceridae is Goniadidae. Goniadids differ from Glycerids in morphological characteristics such as boasting iridescent integuments and a ring of macro- and micrognaths. Glycerids, on the other hand, are easily recognizable by their distinct reddish coloration and their four dark jaws with ailerons at the end of their proboscis. They also have a long, muscular, and eversible proboscis and a pointed, annulated prostomium. The anterior annulus of the prostomium has four appendages, while the posterior annulus has one pair of nuchal organs. Glycerids do not possess eyes.

**Q117. What is parapodia and how it is significant in Polychaetes?**

**Timing. 6.47s**

**Ans**. Parapodia are paired lateral outgrowths on each body segment of polychaete annelids. They can bear various structures including bristles known as chaetae. Parapodia are significant in Polychaetes because they are used for locomotion, respiration, and feeding. They also play a role in the taxonomy of Polychaetes as the shape and size of parapodia can vary between species and can be used to identify different species within a family.

**Q118. Give citation for the Glycera alba?**

**Timing. 3.22sec**

**Ans**. I'm sorry, I do not have that information.

**Q119. A total of 31 valid Glycera species have been recorded in India. True or False?**

**Timing: 3.54sec**

**Ans**. As mentioned in the context, a total of 75 valid species of Glycera are present in the world, of which 21 valid species have been recorded in India so far.

**Q120. Gurbe, 1850 coined the term Glyceridae. True or False?**

**Timing. 4.03sec**

**Ans**. Yes, Grube, 1850 coined the term Glyceridae.