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Question Bank

Standard :- 12th

Subject :- GEOLOGY

सूचना

१. फक्त विद्यार्थ्यांना प्रश्नप्रकारांचा सराव करून देण्यासाठीच

२. सदर प्रश्नसंचातील प्रश्न बोर्डाच्या प्रश्नपत्रिकेत येतीलच असे नाही याची नोंद घ्यावी.

STD 12 -2021

QUESTION BANK

(Note- Students must practice answering the Questions given in the Exercise, at the end of every Chapter, in the Text- Book)

CHAPTER- 1

THE DYNAMIC EARTH

SECTION- B

Attempt **any EIGHT** of the following questions:- (2 Marks each.)

1. Write a short note on core of the Earth.
2. Distinguish between continental crust and oceanic crust (2 points).
3. What is lithosphere?
4. What is asthenosphere?
5. Enlist two evidences that support continental drift theory.
6. Explain divergent plate boundaries.
7. Describe convergent plate boundaries.
8. What are Transform fault boundaries?
9. How are fold mountains formed? Give an example.
10. Himalayas & Sahayadris are two different types of mountains. Give reasons.

SECTION- C

Attempt **any EIGHT** of the following questions:- (3 Marks each)

1. What are plates? Explain convergent plate boundaries.
2. Describe the term ‘plates’. Explain Transform fault boundaries giving an example.
3. What is a plate? Explain divergent plate boundaries.
4. Enumerate the evidences used in support of continental drift hypothesis.
5. Name and give examples of different classes of plate boundaries.
6. Describe divergent plate boundaries with a suitable example.
7. Write a note on transform fault boundaries giving an example.
8. Explain the formation of volcanic mountains. Give an example.
9. Name and give examples of any three types of mountains.
10. What are fault-block mountains? Give a suitable example.

CHAPTER -2

PETROLOGY

SECTION- A

Q1.Select and write the correct answer :- (1 Mark each)

1. Granite and rhyolite have the same ----------

a) texture.

b) cooling history.

c) composition.

d) structural deformation.

2. Rocks rich in mafic minerals are called ----------

a) Leucocratic.

b) Melanocratic.

c) Mesocratic.

d) Hyper-melanocratic.

3. Essentially all sedimentary deposits show evidence of----------

a) fossils.

b) stratification.

c) ripple marks.

d) mud cracks.

4. The rock formed by thermal metamorphism of Sandstone is----------

a) Slate

b) Quartzite

c) Marble

d) Gneiss.

5. a) Examples of discordant igneous bodies are sill and lopolith .

b) Examples of discordant igneous bodies are sill and batholith

c) Examples of discordant igneous bodies are batholith and dyke.

d) Examples of discordant igneous bodies are lopolith and dyke.

6. A) Leucocratic — i) Dunite

B) Mesocratic — ii) Gabbro

C) Melanocratic — iii) Syenite

D) Hyper-melanocratic — iv) Granite

a) A—iv, B—iii, C—ii, D—i.

b) A—iii, B—ii, C—i, D—iv.

c) A—ii, B—i, C—iv, D—iii.

d) A—i, B—iv, C—iii, D—ii.

7. a) Pegmatite is an igneous, plutonic, acidic rock.

b) Pegmatite is an igneous, hypabyssal, acidic rock.

c) Pegmatite is an igneous, plutonic, basic rock.

d) Pegmatite is an igneous, hypabyssal, basic rock.

8. a) Breccia is a residual deposit.

b) Breccia is an argillite rock.

c) Breccia is an arenite rock.

d) Breccia is a rudite rock.

9. The rock which is suitable for foundation is ----------

a) Marble

b) Limestone.

c) Slate

d) Quartzite.

10) The metamorphic rock developed as a result of the highest intensity of metamorphism is----------.

a) Shale

b) Schist

c) Phyllite

d) Gneiss

Q.2. Answer the following questions :- (1 Mark each)

1) What is a rock?

2) What is meant by the term ‘aphanitic’?

3) How are essential minerals important in igneous rocks?

4) Where do the hypabyssal rocks consolidate?

5) What is the shape of a laccolith?

6) Which class of rocks consists of sand-sized grains?

7) Name the types of metamorphism.

8) Which rocks are appropriate for roofing purposes?

SECTION-B

Attempt **any EIGHT** of the following questions:- (2 Marks each)

1. Name the agents of metamorphism.

2. Which special property of rocks is a prerequisite for use in flooring? Give an example.

3. How is marble formed?

4. What is clastic texture?

5. Shale belongs to which class of sedimentary rocks?

6. What are rudites in sedimentary rocks?

7. Write a note on phacolith.

8. How is ropy structure formed?

9. What is meant by pillow structure?

10. What are secondary minerals? Give examples.

11. What are extrusive igneous bodies? Give an example.

12. How does vesicular structure result in igneous rocks?

SECTION- C

Attempt **any EIGHT** of the following questions:- (3 Marks each)

1. Give the classification of igneous rocks based on SiO_2 percentage.

2. What is a batholith?

3. Describe Sill as an intrusive igneous body.

4. Explain the term ‘primary minerals’ in igneous rocks.

5. How does granulose structure develop in metamorphic rocks?

6. What are non-clastic rocks? Give their types with one example each.

7. Describe ripple marks in sedimentary rocks.

8. How are non-transported deposits formed? Give an example.

9. Explain the formation of slaty cleavage in metamorphic rocks.

10. Describe thermal or contact metamorphism.

11. How is schistose structure formed?

12. Explain Dyke as an intrusive igneous body.

SECTION-D

Attempt **any THREE** of the following questions:- (4 Marks each)

1. List the major types of igneous textures and describe them.

2. Classify igneous rocks based on mode of occurrence, giving one example of each class.

3. What are clastic rocks? Give the different classes with one example each.

4. Describe dynamothermal metamorphism.

5. Write a note on Gneissose structure.

CHAPTER- 3

PALAEONTOLOGY AND STRATIGRAPHY

SECTION- A

Q1.Select and write the correct answer:- (1 mark each)

1. Era of Standard geological time scale which contains the most recent or modern life is the----------Era.

a) Cenozoic b) Mesozoic c) Paleozoic d) Late Proterozoic.

2. Which of the following applies to the standard geologic time scale?

a) It was developed through radioactive dating.

b) It is based on superposition and faunal succession.

c) It is divided into periods of equal length.

d) It was developed in India.

3. A) James Hutton i) Term fossil

B) Steno ii) Faunal Succession.

C) William Smith iii) Order of superposition.

D) Georgius Agricola iv) Uniformitarianism.

a) A—iv, B—iii, C—ii, D—i.

b) A—i ,B—ii, C—iii ,D—iv.

c) A—ii, B—iii ,C—iv ,D—i.

d) A—iii, B—iv, C—i, D—ii.

4. Dinosaurs diversified in---------period.

a) Paleogene b) Cretaceous c) Jurassic d)Triassic

5) Gold and chromite deposits belong to----------

a) Dharwar Supergroup b) Vindhyan Supergroup

c) Cuddapah Supergroup. d) Gondwana Supergroup.

6) Coal seam beds occur in----------

a) Dharwar Supergroup b) Vindhyan Supergroup.

c) Cuddapah Supergroup d) Gondwana Supergroup.

7) Mammals diversified in---------- Era.

a) Cenozoic b) Mesozoic c) Paleozoic d) Late Proterozoic.

8) Mesozoic and Cenozoic Eras are subdivided into----------periods.

a) two b) three c) five d) six

9) Cuddapah Supergroup of rocks---------

a) exhibit abundant evidence of life

b) are non -fossiliferous.

c) are granitic in composition

d) are composed of basalts

10) Organic walled microfossils like pollen, spores, seeds etc are studied under the branch of----------

a) Palynology b) Palaeozoology c) Palaeobotany d) Paleoichnology.

Q2. Answer the following questions:- (1 mark each)

1. What are imprints?
2. What are trace fossils?
3. What are fossils?
4. What are index fossils?
5. Give the economic importance of Cenozoic rocks.
6. Rocks of which Supergroup of Peninsular India contain diamonds?
7. What is a marker or key horizon?
8. Which lithostratigraphic Supergroup of Peninsular India is best exposed in the form of a crescent-shaped outcrop?

SECTION –C

Attempt **any EIGHT** of the following questions:- (3 Marks each)

1. Enlist the prerequisites of fossilization.
2. Describe the process of carbonization.
3. What is an index fossil? Give an example.
4. Write a note on principle of faunal succession.

5. Give the economic importance of Dharwar Supergroup.
6. Write a note on fossils of Gondwana Supergroup.
7. Name the periods of Paleozoic Era.
8. Describe the principle of Uniformitarianism.
9. Describe the lithology of Deccan Volcanic Province.
10. What is meant by Order of Superposition?
11. How are fossils useful in exploration of petroleum and coal reserves?
12. Explain Casts and Moulds as a mode of preservation of organisms for fossilization.

SECTION- D

Attempt **any THREE** of the following questions:- (4 marks each)

1. Describe any four uses of fossils.
2. Describe the Deccan Volcanic Province with reference to its age and economic importance.
3. What is Petrification? Give an example.
4. Discuss the method of Lithological correlation.
5. Describe the Cuddapah Supergroup with reference to lithology and economic importance.

CHAPTER- 4

STRUCTURAL GEOLOGY

SECTION- A

Q1. Choose the correct alternative and write the answer:- (1 Mark each)

1. Cracks or fractures in the Earth's crust along which there has been slipping or displacement of rocks are called----------

a. Folds b. Faults c. Joints d. Unconformities

2. Wavy undulations or bends developed in rocks are called----------

a. Joints b. Unconformities c. Folds d. Faults

3. A set of parallel normal faults which occur at regular intervals gives rise to a ----------fault.

a. Normal b. Reverse c. Step d. Horst

4. Surface of erosion or non-deposition that separates two series of beds is termed as----------

a. Anticline b. Graben c. Oblique d. Unconformity

5. A joint which is parallel to the dip direction of adjacent beds is called ----------joint.

a. Diagonal b. Dip c. Strike d .Bedding

6. In a symmetrical syncline, the two limbs ----------

a. dip towards each other by the same angle.

b. dip away from each other by different angles.

c. dip towards each other by different angles.

d. dip away from each other by the same angle.

7. a. A reverse fault is a result of tensional forces in which hanging wall is displaced downwards.

b. A reverse fault is a result of compressional forces in which footwall is displaced upwards.

c. A reverse fault is a result of compressional forces in which hanging wall is displaced upwards.

d. A reverse fault is a result of tensional forces in which footwall is displaced downwards.

8. A. Bedding joint i. convex downwards.

B. Angular unconformity ii. parallel to bedding plane.

C. Syncline iii. low dip angles.

D. Thrust fault iv. older & younger beds are not parallel.

a. A-iii, B-i, C-ii, D-iv

b. A-iv, B-ii, C-iii, D-i

c. A-ii, B-iv, C-i, D-iii

d. A-i, B-iii, C-iv, D-ii

9. At Gilbert Hill, Mumbai, columnar joints are well exhibited in ----------rocks.

1. Granite 2. Basalt 3. Sandstone 4. Marble

10. The part between the crest of one fold and the trough of the adjacent fold is its ----------

1. Crest 2. Trough 3. Axis 4. Limb

SECTION- C

Attempt **any EIGHT** of the following questions:- (3 Marks each)

1. Describe and draw a diagram of an Angular unconformity.
2. What is a Bedding joint?
3. Write a note on Diagonal joints.
4. What is a Horst and Graben? Draw a suitable diagram.
5. Describe a Thrust fault with a neat diagram.
6. How is movement along the fault plane measured? Explain.
7. Describe the different parts of a fault.
8. What are Strike slip faults?
9. Write a note on an Anticline and draw a labeled diagram.
10. What are Symmetrical folds?
11. Enlist and describe parts of a fold.
12. Describe a Syncline.

SECTION- D

Attempt **any THREE** of the following questions:- (4 Marks each)

1. Describe Disconformity and Nonconformity, giving diagrams of each.
2. Explain Columnar joints and give an example.

3. What are Normal faults and Reverse faults? Draw diagrams for both.

4. Write a note on Asymmetrical folds, giving their types with a diagram.

5. What is meant by Strike and Dip of beds and name the tool used to measure it?

CHAPTER-5

ECONOMIC MINERALS AND ROCKS

SECTION- A

Q1. Choose the correct alternative and write the answer:- (1 Mark each)

1.a) Manganese ore minerals are Pyrolusite and Magnetite.

b) Manganese ore minerals are Psilomelane and Haematite.

c) Manganese ore minerals are Psilomelane and Magnetite.

d) Manganese ore minerals are Pyrolusite and Psilomelane.

2.a) The important ores of Copper are Chalcopyrite, Malachite, Cuprite and Native copper.

b) The important ores of Copper are Chalcopyrite, Malachite, Cuprite and Sphalerite.

c) The important ores of Copper are Chalcopyrite, Malachite, Cuprite and Galena.

d) The important ores of Copper are Chalcopyrite, Malachite, ,Cuprite and Monazite.

3. A) Kyanite i) $Al_2(Si_2O_5)OH_4$

B) Bauxite ii) Al_2SiO_5

C) Kaolin iii) $KAlSi_3O_8$

D) Orthoclase iv) $Al_2O_3.2H_2O$.

a) A-iv, B-iii, C-ii, D-i.

b) A-iii, B-i, C-iv, D-ii.

c) A-ii, B-iv, C-i, D-iii.

d) A-i, B-ii, C-iii, D-iv

4. Which mineral is known as ‘Abhraka’ in ayurveda?

a) Malachite. b) Haematite. c) Mica. d) Galena.

5. The zinc ore mineral is------

a) Sphalerite. b) Monazite. c) Zircon. d) Cinnabar.

6) Which of the following is NOT a mineral in the true geological sense?

a) Petroleum.

b) Quartz.

c) Bauxite.

d) Mica.

7) Garnet is used as ----------

a) source of thorium and rare Earths.

b) abrasive and gemstone.

c) raw material in ceramic and electrical industries.

d) raw material in refractory and medicine industries.

8) Cherry red streak is a diagnostic test of—

a) Galena

b) Magnetite

c) Haematite.

d) Chalcopyrite.

9) Which of the following mineral exhibits bright green colour?

a) Malachite.

b) Galena.

c) Pyrolusite.

d) Haematite.

10) The chemical composition of Magnetite is---

a) Fe_2O_3 b) Fe_3O_4 c) MnO_2 d) $MnO_2.H_2O$

Q2.Answer the following questions:- (1 Mark each)

1 .What is tenor of ore?

2. What is gangue?

3. What are industrial minerals?

4. Give the name of the hardest mineral used as an abrasive.

5. Which is the best variety of ‘abhraka’ employed in medicinal preparations?

6. Give the name of the best variety of coal.

7. Why is gypsum added to raw materials of Portland cement?

8. What is meant by CBM?

SECTION- B

Attempt **any EIGHT** of the following questions:- (2 Marks each)

1. Give the classification of natural resources of economic value with two examples.

2. Name the lead ore? Give its chemical composition with physical properties.

3. Give the name of aluminium ore and its chemical composition. How does it occur?

4. What are unconventional petroleum resources? Give examples.

5. Give the specifications of limestone deposits which are suitable for manufacture of cement.

6. Which is the important source of thorium and rare Earth? Describe its physical properties.

7. Write a note on uses of ceramics.

8. Enlist raw materials used in refractory industry .Give the chemical composition of any two raw materials.

9. Name the Maharasas and give the chemical composition of any two Maharasas.

10. Write a note on Uparasas.

11. Describe Sadharanarasa with its chemical composition.

12. Which industries are located near the market. Why?

CHAPTER- 6

HYDROGEOLOGY

SECTION- A

Q1. Choose the correct alternative and write the answer:- (1 Mark each)

1. The main source of groundwater, which originates in the atmosphere is----------

a) Volcanic water b) Magmatic water c) Meteoric water d) Artesian water

2. The zone between the ground surface and the top of capillary fringe is called----------

a) saturated zone b) zone of aeration c) supersaturated zone d) 'o' zone

3. Porosity is the ratio of ----------

a) volume of solid soil to the total volume of the rock forming the soil material.

b) volume of void space to the total volume of the soil or organic material in the aquifer.

c) volume of void space to the total volume of the rock or Earth material.

d) volume of solid space to the total density of the rock or Earth material

4. The capacity of a water-bearing formation to transmit water is called----------

a) Porosity b) Hydraulic constant c) Permeability d) Aquiclude

5. An unconfined aquifer is also called a----------

a) Phreatic aquifer b) Artesian aquifer c) Compact aquifer d) Perched aquifer

6. ---------- is not a method of rooftop rainwater harvesting.

a) Recharge pit b) Recharge trench c) Recharge tubewell d) Recharge gabion

7. The rock which can store groundwater is said to be----------

a) permeable b) porous c) Granitic d) porphyritic

8. Water entrapped in cavities of sedimentary rocks is----------water

a) meteoric b) magmatic c) connate d) juvenile

SECTION- C

Attempt **any EIGHT** of the following questions:- (3 Marks each)

1. Write a note on the three sources of water.

2. Explain with examples the terms aquiclude and aquitard.

3. What is an aquifer? Write a note on Unconfined aquifer.

4. Describe the Zone of aeration.

5. What is an aquifer? Write a note on Confined aquifer.

6. What is meant by the Zone of saturation.

7. What is meant by permeability of a rock?

8. What is an aquifer? Write a note on Perched aquifer.

9. What is porosity of a rock? Give a suitable example.

10. Write notes on aquifer and aquifuge.

SECTION- D

Attempt **any THREE** of the following questions:- (4 Marks each)

1. Write a note on the vertical distribution of groundwater.

2. Describe the hydrological properties of rocks.

3. Give a brief description of Confined aquifer and Unconfined aquifer.

4. Describe Perched aquifer and Confined aquifer.

5. Describe Perched aquifer and Unconfined aquifer.

CHAPTER- 7

GEOHAZARDS

SECTION- A

Q1. Choose the correct alternative and write the answer:- (1 Mark each)

1. Downslope movement of rock debris in response to gravitational stresses is called----------

a) faulting b) slip c) thrusting d) landslide

2. Debris avalanche is a----------

a) Very rapid to extremely rapid debris flow b) Slow to extremely slow debris flow

c) Very rapid to slow debris flow d) Very rapid to extremely rapid rock fall

3. The most beautiful, but deadliest volcanoes are ----------volcanoes.

a) Composite b) Shield c) Fissure d) Dome

4. For a quick estimation of the distance of the epicenter from the seismic station, seismologists multiply the S minus P (S-P) time by a factor of ----------

a) 7km/s b) 8km/s c) 7km/hr d) 8km/hr

5. The scale most commonly used to measure the intensity of an earthquake is----------

a) Modified Mercalli scale b) Richter scale c) Clinometer compass d) None of the above

6. In Richter scale, the ..... of the largest wave produced by an earthquake is corrected for distance and assigned a value on an open-ended logarithmic scale.

a) wavelength b) amplitude c) velocity d) magnitude

7. The elastic rebound theory of H.H Reid explains----------

a) The origin of earthquake

b) The origin of body waves

c) The distribution of earthquakes

d) Rheology of material

8. Imaginary lines joining points of same earthquake intensity are called----------

a) Isoquake lines b) Isoseismal lines c) Isotropic lines d) Richter lines

9. The record of zig-zag lines representing seismic waves generated by an earthquake is called-

---

a) Seismograph b) Seismogram c) Seismic train d) Velocity graph

10. Shield volcanoes are----------

i) the largest of the three types ii) gently sloping

iii) built up of highly viscous granitic lavas iv) eruptions are generally non-explosive

a) All statements are true b) statements i, ii and iv are true

c) Statements ii, iii and iv are true d) statements i, iii and iv are true

SECTION- B

Attempt **any EIGHT** of the following questions:- (2 Marks each.)

1. What are tsunamis?
2. Earthquakes do not occur deeper than 700kms.Explain
3. S waves arrive after P waves at the recording station. Why?
4. Why are the 'L' waves more disastrous of all the seismic waves?
5. How does an Earthquake damage mountainous regions?
6. The Trans- Mediterranean belt runs through which region?
7. Describe the earthquake belt along which most of the deep focus earthquakes occur.
8. What is meant by magnitude of an earthquake?
9. What are body waves?
10. Which are the different types of landslides? Explain.
11. What are the characteristic features of a Composite volcano?
12. What are Lahars?

SECTION- D

Attempt **any THREE** of the following questions:- (4 Marks each)

1. Explain the terminology used in Seismology.
2. Explain the terms intensity and magnitude of an earthquake.
3. What are volcanoes? Give a brief description of its types.
4. What are landslides? What is the impact of geological structures on landslides?
5. Explain a) Prediction of volcanic activity b) Prevention and mitigation of volcanic hazard.

CHAPTER 8

REMOTE SENSING AND GIS

SECTION - A

Q1. Choose the correct alternative and write the answer :- (1 mark each)

1. National Remote Sensing Centre is located at ----------

a. Mumbai b. Kolkata c. Hyderabad d. Chennai

2. Satellites carry a source of electromagnetic energy in the form of ----------

a. IRS b. RADAR c. MRI d. RISAT

3. Visible and thermal range data is recorded by sensors called ----------

a. MSS b. LISS c.EME d. LISS

4. Almost all remote sensing satellites are placed in ----------

a. GEO b. TCC c. UAV d. LEO

5. Vegetation in a standard FCC appears ----------

a. Green b. Blue c. Infra-red d. Red

6. Distance between features, length of perimeter, area of a feature etc are GIS generic questions related to ----------

a. Neighbourhood b. Trend analysis c. Measurement d. Location

7. The abbreviation GIS stands for ----------

a. Geological Information System b. Geographic Information System

c. Geomorphological Information System d. Geophysical Information System

8. Element of Image interpretation associated with relative lightness of color of objects in imageries is ----------

a. Tone b. Shape c. Pattern d. Association

9. Element of Image interpretation which is scale-dependent is ----------

a. Shape b. Size c. Pattern d. Tone

10. The distinct range of wavelengths in which data is collected are called ----------

a. Wavelengths b. MSS c. Bands d. PAN

Q2. Answer the following questions :- (1 mark each)

1. Name the planned Satellite which carries Atmospheric Correction Sensor (ACS).
2. From which portal can digital data be downloaded?
3. A simple camera equipped with a flash for illumination is an example of which type of Remote Sensing?
4. Name the Orbit in which almost all Remote Sensing satellites are placed.
5. What is an Imagery with a single band image called?
6. A simple camera without a flash is an example of which type of Remote Sensing?
7. Name the Satellite which has sensors that can scan the Earth at a resolution of less than 1mm.
8. The images we see in Google Earth or Google Maps are examples of which type of Satellite imagery data?

SECTION – B

Answer **any EIGHT** of following questions :- (2 Marks each)

Q3. Explain the term ‘Resolution’ of Satellite imagery?

Q4. Which ‘Band’ has been discontinued in many of the IRS satellites? Why?

Q5. What is meant by ‘Tone’ as an element of Image Interpretation?

Q6. What are Aerial Photographs?

Q7. What are the abilities of a GIS?

Q8. List any two applications of Remote Sensing and GIS.

Q9. What is meant by the term ‘Remote Sensing’?

Q10. What is ‘active’ remote sensing?

Q11. Name the two organizations in Maharashtra which have incorporated Remote sensing data in a GIS.

Q12. What are ‘bands’ in Remote sensing satellite data?