

17P/205/22 (i)

(To be filled up by the candidate by blue/black ball-point pen)

Roll No.

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Serial No. of OMR Answer Sheet

2017

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

(Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)

1. Within 30 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall except the Admit Card without its envelope.
3. A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.
6. No overwriting is allowed in the entries of Roll No., Question Booklet no. and Set no. (if any) on OMR sheet and Roll No. and OMR sheet no. on the Question Booklet.
7. Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet.
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit only OMR Answer Sheet at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 32

(उपरोक्त निर्देश हिन्दी में अन्तिम आवेगों पृष्ठ पर दिये गए हैं।)

17P/205/22 (i)

ROUGH WORK

रफ़ कार्य

17P/205/22 (I)

No. of Questions : 120

Time : 2 Hours

Full Marks : 360

Note : (1) Attempt as many questions as you can. Each question carries 3 (Three) marks. One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

01. The soil formation which contains significant water in pores but not able to yield significantly :

- | | |
|----------|------------|
| (1) Clay | (2) Sand |
| (3) Silt | (4) Gravel |

02. Major aquifer system lies in India is :

- | | |
|-------------------------|----------------------|
| (1) Cavernous limestone | (2) Alluvium |
| (3) Fractured granite | (4) Vesicular Basalt |

03. Groundwater movement in aquifer can be assessed by :

- (1) Tracer study
- (2) Analysis of water table contour
- (3) Analysis of groundwater potential
- (4) Water table contour and tracer study

04. Transmissivity is higher for :

- | | |
|------------------------|----------------------|
| (1) Unconfined aquifer | (2) Confined aquifer |
| (3) Leaky aquifer | (4) Perched aquifer |

05. Drilling of rocks in hard rock is conducted by :

- | | |
|--------------------|--------------------|
| (1) Rotary rig | (2) DTH rig |
| (3) Reverse Rotary | (4) Percussion Rig |

06. Specific capacity of well if the discharge is $2 \text{ m}^3/\text{second}$ and drawdown is 10 m.

- | | |
|----------------------------|----------------------------|
| (1) 20 litre/second/meter | (2) 200 litre/second/meter |
| (3) 100 litre/second/meter | (4) 125 litre/second/meter |

07. Dam will be unstable if dip of rock bed is :

- | | |
|-------------------|---------------------|
| (1) Upstream side | (2) Downstream side |
| (3) Vertical | (4) Horizontal |

08. Tunnelling is not suitable along the :

- | | |
|--------------------------------|------------------------------|
| (1) Dip direction of beds | (2) Strike direction of beds |
| (3) Parallel to bedding planes | (4) Oblique to dip direction |

09. Which rock is most suitable for foundation of dam :

- | | |
|---------------|----------------------|
| (1) Granite | (2) Vesicular basalt |
| (3) Sandstone | (4) Quartzite |

10. Reservoir is successful if rock is :

- | | |
|------------------------|----------------------|
| (1) Fractured and soft | (2) Soft and massive |
| (3) Fractured and hard | (4) Hard and massive |

11. Rock cut slope is maximum stable if rock bed is :

- (1) Highly jointed and has steeper dip
- (2) Highly jointed and has gentle dip
- (3) Massive and gentle dip
- (4) Massive and steeper dip

12. Soil creep occurs when the movement of soil is :

- | | |
|----------------|---------------------|
| (1) Rapid | (2) Slow |
| (3) Very rapid | (4) Extremely rapid |

13. Slicken sides are a type of :

- | | |
|---------------|-----------------|
| (1) Foliation | (2) Bedding |
| (3) Lineation | (4) Fault plane |

14. Upfolds or arches of layered rocks are called :

- | | |
|---------------|--------------------|
| (1) Antiforms | (2) Faults |
| (3) Synforms | (4) Unconformities |

15. Most appropriate example of Geomagnetic reversal is imprinted on the :

- | | |
|-----------------|--------------------|
| (1) Rift basins | (2) Orogenic belts |
| (3) MORs | (4) Trenches |

16. Cooling joints are ----- in cross-section.

- | | |
|-----------------|------------------|
| (1) Hexagonal | (2) Circular |
| (3) Rectangular | (4) Of any shape |

17. Isoclinal folds have an interlimb angle of :

- | | |
|---------------------|---------------------|
| (1) $80 - 90^\circ$ | (2) $50 - 60^\circ$ |
| (3) $0 - 10^\circ$ | (4) $30 - 40^\circ$ |

18. Folds with straight limbs and sharp hinges are called :

- | | |
|---------------------|---------------------|
| (1) Kink folds | (2) Chevron folds |
| (3) Ptygmatic folds | (4) Recumbent folds |

19. Beds on the surface of the earth always extend in the direction of :

- | | |
|------------------|----------------|
| (1) True dip | (2) Strike |
| (3) Apparent dip | (4) Horizontal |

20. A break in the sedimentation is called :

- | | |
|------------------|-------------|
| (1) Unconformity | (2) Strata |
| (3) Formation | (4) Laminae |

21. Continental drift theory was given by :

- | | |
|----------------------|--------------------|
| (1) Harry Hess | (2) A. Wagner |
| (3) Vine and Mathews | (4) J. Tuzo Wilson |

22. Lithospheric plates are composed of :

- (1) Crust
- (2) Mantle
- (3) Crust and upper Mantle
- (4) Oceanic crust and continental crust

23. Which of the following spectrum of the electromagnetic waves is **not** used in remote sensing :

- | | |
|-----------------------|----------------------|
| (1) Ultra violet rays | (2) Visible spectrum |
| (3) Microwaves | (4) Radio waves |

24. Colour of fresh vegetation in normal FCC imagery is :

- | | |
|-----------|-----------|
| (1) Black | (2) Green |
| (3) Red | (4) White |

25. What powers the hydrologic cycle ?

- | | |
|-----------------------|-----------------------|
| (1) Mantle convection | (2) Radioactive decay |
| (3) Solar energy | (4) Wind energy |

26. The groundwater contribution to a stream is known as _____.

- | | |
|---------------|------------------|
| (1) Base flow | (2) Runoff |
| (3) Storage | (4) Transmission |

27. _____ is the branch of geology which deals with the study of the water below the surface of the earth crust.

- | | |
|----------------|----------------------|
| (1) Mineralogy | (2) Hydrometeorology |
| (3) Geophysics | (4) Hydrogeology |

28. Which rock type would make the best aquifer ?

- | | |
|---------------|--------------|
| (1) Shale | (2) Mudstone |
| (3) Sandstone | (4) Basalt |

29. The subsurface Zone in which all rock openings are filled with water is called the

- | | |
|----------------------|-----------------|
| (1) Saturated Zone | (2) Water table |
| (3) Unsaturated Zone | (4) Aquiclude |

30. Permeability is

- (1) The percentage of a rock's volume
- (2) The capacity of a rock to transmit a fluid
- (3) The percentage of pores in the rock
- (4) The discharge of water through the width of the aquifer.

31. Which of the following statements regarding human activities and the hydrologic cycle is false ?

- (1) Building roads and parking lots increase the amount of infiltration and percolation.
- (2) Human contribution to global and local warming can change the balance of water in different hydrologic reservoirs.
- (3) Global warming can lead to melting of frozen water and glacial ice.
- (4) Rainwater harvesting helps to augment the groundwater resources.

36. Which of the following processes is a major cause of acid rain ?

- (1) Burning of coal and gasoline
- (2) Destruction of rain forests
- (3) Leakage of industrial waste
- (4) Change of climatic conditions

37. Chromite ores in ultramafic rocks are formed by :

- (1) Magmatic process
- (2) Metamorphic process
- (3) Hydrothermal process
- (4) Pneumatolytic process

38. Degana is known for :

- (1) Scheelite deposit
- (2) Wolframite deposit
- (3) Magnetite deposit
- (4) Galena deposit

39. A mass of rock traversed by a network of small ore-bearing veinlets is called :

- (1) Saddle reef
- (2) Composite veins
- (3) Ladder veins
- (4) Stockworks

40. Kiruna type magnetite deposit is typically characterized by the presence of :

- | | |
|---------------|---------------|
| (1) Fe and P | (2) Fe and As |
| (3) Fe and Bi | (4) Fe and Sb |

41. Ore minerals usually associated with chalcopyrite deposits are :

- (1) Bornite, cuprite, covellite
- (2) Hematite, magnetite and siderite
- (3) Bauxite, laterite, goethite
- (4) Mica, olivine, Pyroxene

42. *Diamonds* in kimberlites are found in the form of :

- | | |
|---------------------|-------------------|
| (1) Segregation | (2) Injection |
| (3) Cavity fillings | (4) Dissemination |

43. Gossans are the signboards of the hidden :

- | | |
|-----------------------|------------------------|
| (1) Sulfide deposits | (2) Oxide deposits |
| (3) Chromate deposits | (4) Phosphate deposits |

44. The regions, where metallic deposits of specific types are found abundantly are called :

- | | |
|----------------------------|----------------------------|
| (1) Metallogenic epochs | (2) Metallogenic provinces |
| (3) Metallogenic districts | (4) Metallogenic regions |

45. Manganese deposits of M.P. and Maharashtra belong to :

- | | |
|------------------------------|-------------------------------|
| (1) Metamorphic ore deposits | (2) Hydrothermal Ore deposits |
| (3) Pegmatitic ore deposits | (4) Magmatic ore deposits |

46. In Zawar, Pb & Zn mineralisation is largely confined to :

- | | |
|--------------------------|--------------------------|
| (1) Slates and phyllites | (2) Graphite-mica Schist |
| (3) Dolomites | (4) Quartz-mica Schist |

47. The famous Kolar Gold Fields and Hutti Gold Mines are located in :

- (1) Karnataka
- (2) Karnataka and Andhra Pradesh
- (3) Karnataka and Tamilnadu
- (4) Karnataka and Kerala

48. Most of the Coal deposits in India are found in :

- | | |
|--------------------|--------------------|
| (1) Lower Gondwana | (2) Upper Gondwana |
| (3) Jurassic | (4) Tertiary |

49. Inertinite corresponds to :

- | | |
|---------------------|----------------------|
| (1) Kerogen Type-I | (2) Kerogen Type-IV |
| (3) Kerogen Type-II | (4) Kerogen Type-III |

50. The carbon in coal which does not combine with any other element is considered as :

- | | |
|----------------------------|----------------------------|
| (1) Total elemental carbon | (2) Total organic carbon |
| (3) Fixed carbon | (4) Total inorganic carbon |

51. Vitrinite reflectance is a parameter used for the determination of :

- | | |
|---------------|------------------|
| (1) Coal rank | (2) Coal grade |
| (3) Coal type | (4) Coal reserve |

52. Which formation is deprived of coal :

- | | |
|------------------------------|------------------------|
| (1) Karharbari Formation | (2) Barakar Formation |
| (3) Barren Measure Formation | (4) Raniganj Formation |

53. Chirimiri is known for :

- | | |
|---------|---------------------|
| (1) Oil | (2) Coal |
| (3) Gas | (4) Atomic minerals |

54. Fuel ratio is the ratio of 'fixed carbon' to :

- | | |
|---------------------|--------------------|
| (1) Volatile matter | (2) Total moisture |
| (3) Total carbon | (4) Total ash |

55. According to Hilt's Rule, there is :

- (1) Decrease of ash content with depth
- (2) Increase of coal rank with depth
- (3) Increase of moisture content with depth
- (4) Increase of ash content with depth

56. The optical behaviour of which of the following maceral uniformly changes with increase in rank :

- | | |
|----------------|-------------------------|
| (1) Inertinite | (2) Liptinite |
| (3) Vitrinite | (4) Secondary liptinite |

57. Sulphur content is high in which of the following coals ?

- (1) Mahanadi valley coals
- (2) Damodar valley coals
- (3) Tertiary coals of NE and NW India
- (4) Son valley coals

58. Grade of coal is related to :

- (1) Carbon content
- (2) Ash content
- (3) Bed moisture
- (4) Sulphur content

59. Cannel coals are rich in :

- (1) Alginite
- (2) Sporinite
- (3) Suberinite
- (4) Resinite

60. Kerogen type-III is derived from :

- (1) Continental plants
- (2) Algal deposits
- (3) Mixture of phytoplankton and zooplankton
- (4) Zooplankton

61. Which of the following rocks has no volcanic equivalent ?

- | | |
|-------------|------------------|
| (1) Gabbro | (2) Anorthosite |
| (3) Diorite | (4) Granodiorite |

62. The commonest rock type in the rift zones is :

- | | |
|-------------|--------------|
| (1) Basalt | (2) Andesite |
| (3) Granite | (4) Diorite |

63. Which of the following magma/lava has more viscosity ?

- | | |
|---------------|--------------|
| (1) Andesite | (2) Basalt |
| (3) Komatiite | (4) Rhyolite |

64. The term 'lithosphere' comprises :

- | | |
|---------------------------|--------------------------|
| (1) Crust + mantle + core | (2) Crust + mantle |
| (3) Crust + upper mantle | (4) Crust + lower mantle |

65. Bulk of the Deccan Trap lavas erupted at ;

- | | |
|--------------|-------------|
| (1) 90 M.Y. | (2) 65 M.Y. |
| (3) 100 M.Y. | (4) 20 M.Y. |

- 66.** Which of the following ternary system is termed as 'Petrogenys residua system' ?
- | | |
|-------------------------------|--------------------------------|
| (1) Albite-kalsilite-silica | (2) Diopside-forsterite-silica |
| (3) Diopside-albite-anorthite | (4) Albite-silica-anorthite |
- 67.** Which of the following constitutes an example of primary igneous texture ?
- | | |
|-----------------|---------------|
| (1) Symplectite | (2) Schistose |
| (3) Porphyritic | (4) Gneissose |
- 68.** Hydrous mafic silicates are characteristic of which of the following rock ?
- | | |
|-----------------|--------------|
| (1) Basalt | (2) Komatite |
| (3) Lamprophyre | (4) Tonalite |
- 69.** The mineral which is most abundant in the ultramafic rocks is :
- | | |
|--------------------|--------------------|
| (1) Na-plagioclase | (2) Ca-plagioclase |
| (3) Amphibole | (4) Olivine |

70. Which of the following mineral is **not** a part of discontinuous reaction series ?
- | | |
|--------------|-----------------|
| (1) Pyroxene | (2) Amphibole |
| (3) Olivine | (4) Plagioclase |
71. Which one of the following is **not** an hypabyssal rock ?
- | | |
|----------------|--------------|
| (1) Granophyre | (2) Pumice |
| (3) Aplite | (4) Dolerite |
72. Which of the following is **not** an extrusive rock ?
- | | |
|--------------|--------------|
| (1) Trachyte | (2) Dunite |
| (3) Andesite | (4) Rhyolite |
73. The shell composition of radiolaria is :
- | | |
|----------------|---------------|
| (1) Calcareous | (2) Siliceous |
| (3) Phosphatic | (4) Chitinous |
74. Which of the following microfossil groups occurs both in marine and fresh water environment :
- | | |
|------------------------------|----------------|
| (1) Calcareous nannoplankton | (2) Chitinzoa |
| (3) Ostracoda | (4) Acritarchs |

75. An example of larger foraminifera is :

- | | |
|------------------------|----------------------|
| (1) <u>Globigerina</u> | (2) <u>Uvigerina</u> |
| (3) <u>Fusulina</u> | (4) <u>Orbulina</u> |

76. Pteropods are :

- | | |
|----------------|-----------------|
| (1) Bryozoans | (2) Brachiopods |
| (3) Gastropods | (4) Trilobites |

77. The study of fossil spores and pollen grains is called :

- | | |
|----------------|------------------|
| (1) Taphonomy | (2) Agronomy |
| (3) Palynology | (4) Paleobiology |

78. The bivalve shell of an ostracode is called :

- | | |
|--------------|---------------------|
| (1) Conch | (2) Protoconch |
| (3) Carapace | (4) Coccolithophore |

79. Which of the following is a bipolar species ?

- (1) *Globigerina bulloides*
- (2) *Neogloboquadrina pachyderma* (sinistrally coiled)
- (3) *Orbulina universa*
- (4) *Neogloboquadrina pachyderma* (dextrally coiled)

80. During upwelling condition, the upper thermocline in the Arabian Sea becomes :

- | | |
|------------------|------------|
| (1) Shallower | (2) Deeper |
| (3) Oligotrophic | (4) Warmer |

81. An example of thermocline planktic foraminifera is :

- | | |
|---------------------------------------|-----------------------|
| (1) <i>Neogloboquadrina dutertrei</i> | (2) <i>Cibicides</i> |
| (3) <i>Globigerina</i> | (4) <i>Textularia</i> |

82. High abundance of infaunal benthic foraminifera in sediment indicates :

- (1) Low organic matter export flux and well oxygenated environment
- (2) Well oxygenated environment
- (3) High organic matter export flux and low oxygen environment
- (4) Low organic matter export flux

83. Extinction of Discoaster group is generally considered as a good stratigraphic marker for :

- (1) Miocene/Pleistocene boundary
- (2) Pliocene/Pleistocene boundary
- (3) Oligocene/Miocene boundary
- (4) Pleistocene/Holocene boundary

84. Lowest species diversity in planktic foraminiferal assemblages occurs in :

- | | |
|--------------------------|-----------------------------|
| (1) Tropical water mass | (2) Sub-tropical water mass |
| (3) Temperate water mass | (4) Polar water mass |

85. Coarsening upward depositional sequences are characteristics of :

- | | |
|-------------------------|----------------------------|
| (1) Glacial environment | (2) Fluvial environment |
| (3) Deltaic environment | (4) Lacustrine environment |

86. Wedge shaped deposition of finer sediments which dip away from the channel are formed as :

- (1) Point-bar deposit by rivers
- (2) Fine grained deposit by shallow sea
- (3) Channel deposit by rivers
- (4) Over bank deposit by rivers

87. In the lower flow regime, Froude number is :

- | | |
|----------------------|--------------------|
| (1) Less than 0.5 | (2) Less than 1 |
| (3) Greater than 0.5 | (4) Greater than 1 |

88. The clay is deposited in :

- | | |
|-----------------------------|----------------------------|
| (1) High energy environment | (2) Cold environment |
| (3) Evaporite environment | (4) Low energy environment |

89. Flute Cast is a :

- | | |
|------------------------|---------------------------|
| (1) Sole structure | (2) Secondary structure |
| (3) Biogenic structure | (4) Desiccation structure |

90. Alluvial soils are :

- (1) Transported soils by various rivers
- (2) Transported soils by various glaciers
- (3) Residual soils formed by ocean
- (4) Zonal soils formed by differential weathering

91. In a graded bedding particle size :

- (1) Decreases in the upward direction
- (2) Decreases in the downward direction
- (3) Decreases in the direction of flow
- (4) particle size remains the same

92. Hummocky Cross Bedding is typical to :

- | | |
|-------------------------|----------------------|
| (1) Deep sea deposits | (2) Storm deposits |
| (3) Lacustrine deposits | (4) Fluvial deposits |

93. Channel bars deposited on the inside of meander curves are called :

- | | |
|---------------|----------------|
| (1) Dunes | (2) Point bars |
| (3) Cut banks | (4) Braid Bars |

94. Well sorted sediments explain deposition under :

- | | |
|----------------------------------|-------------------------------|
| (1) Fluctuating energy condition | (2) Constant energy condition |
| (3) High energy condition | (4) Low energy condition |

95. Arkose is a :

- (1) Sandstone with less than 15% matrix and 25% of feldspar
- (2) Sandstone with more than 15% matrix and 25% of feldspar
- (3) Sandstone with less than 15% matrix and 25% rock fragments
- (4) Sandstone with more than 15% matrix and 25% of rock fragments

96. A limestone with round particles fine grained calcium carbonates less than 2 mm in diameter without any concentric or radial structure is :

- | | |
|----------------------------|--------------------------|
| (1) Oolitic limestone | (2) Pellicular limestone |
| (3) Intraclastic limestone | (4) Bioclastic limestone |

97. Select an index fossil from the following for intertrappean Beds ?

- (1) Spirifer raja
- (2) Physa (Bullinus) princeps
- (3) Macrocephalites macrocephalus
- (4) Protoretropora ampla

98. Which of the following parts is **not** present in brachiopods ?

- (1) Adductor muscles
- (2) Didductor muscles
- (3) Delthyrium
- (4) Ligament

99. Palintrope is a specific growth feature found in :

- (1) Bruchiopods
- (2) Bivalves
- (3) Gastropods
- (4) Cephalopods

100. The facial suture which is present along ventral margin of cephalon is known as :

- (1) Proparian
- (2) Hypoparian
- (3) Gonatoparian
- (4) Opisthoparian

101. The bryozoan colony which acquires a netlike or window shape due to joining and rejoining of branches, is known as :

- | | |
|----------------|--------------------|
| (1) Foliaceous | (2) Ferestrate |
| (3) Dendroid | (4) Upward Growing |

102. Which of the following subclasses of crinoids is represented in modern environment ?

- | | |
|----------------|----------------|
| (1) Inadunata | (2) Camerala |
| (3) Articulata | (4) Flexibilia |

103. The serially repeated lamellar/fibrous internal ligament in bivalves is known as :

- | | |
|-----------------|-------------------|
| (1) Alvinclular | (2) Duplivincular |
| (3) Parvincular | (4) Multivincular |

104. Which of the following is **not** a basement rock in Indian stratigraphy ?

- | | |
|-----------------|------------------|
| (1) Charnockite | (2) Porcellanite |
| (3) Khondalite | (4) Gondile |

105. Hadenstroemia beds belongs to :

- | | |
|--------------------|---------------------|
| (1) Early Triassic | (2) Middle Triassic |
| (3) Late Triassic | (4) Early Jurassic |

106. Bajocian is a stage of :

- | | |
|---------------------|----------------------|
| (1) Middle Jurassic | (2) Late Jurassic |
| (3) Early Jurassic | (4) Early Cretaceous |

107. What is the age of Uttattur Group ?

- | | |
|---------------|---------------------------|
| (1) Turonian | (2) Coniacian - Santonian |
| (3) Campanian | (4) Albian - Aptian |

108. The Palaeocene succession in Himalaya is represented by which of the following formations ?

- | | |
|-------------|-------------|
| (1) Subathu | (2) Kasauli |
| (3) Muree | (4) Kamalia |

109. The most prominent textural feature in regional metamorphic rocks is :

- | | |
|-------------------|-----------------|
| (1) Foliation | (2) Bedding |
| (3) Porphyroblast | (4) Nematoblast |

110. Identify the false statements about metamorphism of shale :

- (1) Clay minerals break down to form micas with increasing grade of metamorphism
- (2) The grain size becomes smaller with increasing grade of metamorphism
- (3) Foliations develop with increasing grade of metamorphism
- (4) Shale loses water with increasing grade of metamorphism

111. Identify the factor that will not cause metamorphism :

- (1) A change in the chemical environment
- (2) An increase in temperature
- (3) An increase in pressure
- (4) Geological time

112. Which series is arranged in order of increasing grade of metamorphism ?

- | | |
|---------------------------|----------------------------|
| (1) Shale-phyllite-slate | (2) Phyllite-gneiss-schist |
| (3) Phyllite-shale-schist | (4) Phyllite-schist-gneiss |

113. Bladed habit characterizes :

- | | |
|-----------------|----------------|
| (1) Sillimanite | (2) Kyanite |
| (3) Feldspar | (4) Andalusite |

114. A mineral form is said to be reticulate if :

- (1) Fibres or columns cross in "Net like" crystalline growth
- (2) The crystals are oriented hair like
- (3) The crystals show a tree-like form
- (4) The crystals are fine needle shaped

115. Which of the following instrument is generally used for determining sp. gr. of rock specimens ?

- | | |
|----------------------------|---------------------------------|
| (1) Jolly's spring balance | (2) Specific gravity bottle |
| (3) Chemical balance | (4) Walker's steel yard balance |

116. What distinguishes a petrological microscope from a biological microscope ?

- (1) High magnification of petrological microscope
- (2) Petrological microscope is a precise measuring instrument
- (3) Petrological microscope has a circular stage while a biological microscope has a rectangular stage
- (4) Higher intensity illumination is required for petrological microscope because rocks are less transparent

117. Miller indices for octahedral plane in cubic crystal are :

- | | |
|-----------|-----------|
| (1) (100) | (2) (110) |
| (3) (111) | (4) (001) |

118. The highest degree of crystal symmetry is shown by _____ and the lowest degree of crystal symmetry is shown by _____ respectively :

- (1) Cubic system and triclinic system
- (2) Cubic system and hexagonal system
- (3) Monoclinic system and trigonal system
- (4) Cubic system and monoclinic system

119. Which of the following is characteristic of Isometric System ?

- | | |
|-------------------------------|-------------------------------|
| (1) 3 axes of 4 fold symmetry | (2) 4 axes of 3 fold symmetry |
| (3) 2 axes of 4 fold symmetry | (4) 6 axes of 5 fold symmetry |

120. It is well known that the faces, edges and solid angles have a definite relationship with each other. Which of the following formula expresses this ?

- | | |
|------------------------|----------------------|
| (1) Nicholas's formula | (2) Prowen's formula |
| (3) Euler's formula | (4) Steno's formula |

17P/205/22 (i)

ROUGH WORK
रफ़ कार्य

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली-काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 30 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्नपुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुक्रमांक और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिए आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो संबंधित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ एम आर उत्तर-पत्र परीक्षा भवन में जमा कर दें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की, भागी होगा/होगी।