

Roll No.-----

**Paper Code**

**4 2 2**

(To be filled in the  
OMR Sheet)

प्रश्नपुस्तिका क्रमांक  
Question Booklet No.

O.M.R. Serial No.

--	--	--	--	--	--	--	--

प्रश्नपुस्तिका सीरीज  
Question Booklet Series

**B**

**M.Sc Industrial Chemistry (Third Semester)**

**Examination, February/March-2022**

**MSIC-304**

**Essentials Oils, Dyes and Paints**

**Time : 1:30 Hours**

**Maximum Marks-100**

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

- निर्देश : —
1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही- सही भरें, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
  2. इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमें से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने हैं। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET) में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वाइंट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा निर्धारित प्रश्नों से अधिक प्रश्नों के उत्तर दिये जाते हैं तो उसके द्वारा हल किये गये प्रथमतः यथा निर्दिष्ट प्रश्नोत्तरों का ही मूल्यांकन किया जायेगा।
  3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
  4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक (O.M.R. ANSWER SHEET) पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
  5. ओ०एम०आर० उत्तर पत्रक (O.M.R. ANSWER SHEET) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
  6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी प्रश्नपुस्तिका बुकलेट एवं ओ०एम०आर० शीट पृथक-पृथक उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
  7. निगेटिव मार्किंग नहीं है।
- महत्वपूर्ण : — प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।



1. The paint contains polystyrene as a base is :
  - (A) Emulsion
  - (B) Synthetic rubber
  - (C) Enamel
  - (D) Aluminium
2. Which of the following is not a vehicle in paints ?
  - (A) Linseed oil
  - (B) Tung oil
  - (C) Poppy oil
  - (D) Turpentine oil
3. In paint, lead is used as :
  - (A) Carrier
  - (B) Drier
  - (C) Base
  - (D) Pigment
4. The maximum surface drying time (min) for class A type plastic emulsion paint as per Indian Standard is :
  - (A) 240
  - (B) 60
  - (C) 75
  - (D) 45
5. Formation of bubbles on painted surfaces is called :
  - (A) Blistering
  - (B) Flaking
  - (C) Fading
  - (D) Bloom

6. What is Distemper ?
- (A) Drying agent
  - (B) A paint consisting of powdered chalk, pigments and water
  - (C) A paint consisting of coloured cement
  - (D) A water proofing agent
7. When paint is applied in three coats, the first coat is called :
- (A) Finishing coat
  - (B) Priming coat
  - (C) Stopping
  - (D) Under coat
8. Red lead, white lead, oxides of zinc and oxides of iron are the substances used in the formation of paints of :
- (A) Base
  - (B) Drier
  - (C) Vehicle
  - (D) Carrier
9. Which of the following is the base in a paint ?
- (A) White lead
  - (B) Sulphates of zinc and manganese
  - (C) Poppy oil
  - (D) Linseed oil
10. In how many layers is oil paint applied to a surface ?
- (A) 1
  - (B) 2
  - (C) 3
  - (D) 4

11. Emulsion Paints contain :
- (A) Zinc white
  - (B) White lead
  - (C) Nitro cotton
  - (D) Polyvinyl autate
12. Anticorrosive paint in colour is :
- (A) White
  - (B) Blue
  - (C) Black
  - (D) Yellow
13. In which of the following below, it is not necessary to remove existing paint to apply a new one ?
- (A) Oil paints
  - (B) Enamel paints
  - (C) Cement paints
  - (D) Aluminium paints
14. Synthetic rubber paints are synthesized from :
- (A) Rubber
  - (B) Resin
  - (C) Synthetic fibres
  - (D) Polyvinge chloride
15. Which of the following is used to make paints odourless to an extent ?
- (A) Celluloid sheets
  - (B) Flat late
  - (C) Acrylic compound
  - (D) Plioway resins

16. The Spray painting is used to :
- (A) Reach high areas
  - (B) Apply large amount of paint
  - (C) Get textured paint
  - (D) Apply paint without touching surface
17. Which of the following has a sheen and is highly washable ?
- (A) Acrylic egg shell
  - (B) Acrylic satin
  - (C) Acrylic gloss
  - (D) Acrylic flat
18. In paints the pigment is responsible for :
- (A) Glassy face
  - (B) Smoothness
  - (C) Durability
  - (D) Colour
19. The liquid part of the paint is called :
- (A) Solvent
  - (B) Drier
  - (C) Vehicle
  - (D) Pigment
20. Bitumen paints offer :
- (A) Hard surface
  - (B) Smooth surface
  - (C) Protective surface
  - (D) Pleasing surface

21. EOs are :
- (A) Complex mixture of non-volatile compounds produced by plants
  - (B) Complex mixture of volatile compounds produced by plants
  - (C) Complex non-volatile compounds produced by any living organism
  - (D) Complex volatile compounds produced by any living organism
22. EQs are insoluble in :
- (A) Alcohol
  - (B) Ether
  - (C) Fixed oil
  - (D) Water
23. Gum resin are :
- (A) Natural plants & tree extracts
  - (B) Obtained artificially
  - (C) Obtained from animals
  - (D) Obtained from both animals and plants
24. Lemons and oranges get their distinctive smell because of :
- (A) Linalool
  - (B) Limonene
  - (C) Methol
  - (D) Camphor
25. For extraction of EOs through distillation process :
- (A) Sufficient quantity of water is added
  - (B) Insufficient quantity of water is added
  - (C) Very small amount of water is added
  - (D) No water is added

26. In steam distillation process :
- (A) Steam does not actually penetrate the dry cell membrane
  - (B) Steam penetrate the dry cell membrane
  - (C) Steam does not have any effect
  - (D) Steam effect the cell membrane and enters in side the cell
27. Membranes of plant cells are :
- (A) Permeable to volatile oil
  - (B) Impermeable to volatile oils
  - (C) Permeable to only water
  - (D) Impermeable to oil water mixture
28. The extent to which hydrolysis proceed :
- (A) Does not depends on the time of contact between oil and water
  - (B) Depends on the time of contact between oil and water
  - (C) Does not depends on the contact time of water
  - (D) Depends on the time of contact of water
29. Distillation speed is faster in :
- (A) Low boiling but more water soluble oil constituents
  - (B) High- boiling but more water soluble oil constituent
  - (C) Low boiling but less water soluble oil constituent
  - (D) High boiling but less water soluble oil constituents
30. For best oil quality :
- (A) Distillation process must be done at low temperature
  - (B) Distillation process must be done at high temperature
  - (C) Distillation process must be done at low pressure
  - (D) Distillation process must be done at low pressure and low temperature



31. Plant materials rich in mucilage :
- (A) Used as it is
  - (B) Must be powdered so that charge materials comes in proper contact with H<sub>2</sub>O
  - (C) Should not be powdered
  - (D) Used as it is for proper contact with H<sub>2</sub>O
32. Cohobation process :
- (A) The returning of water to the still is not done
  - (B) Does not minimizes the losses of oxygenated components
  - (C) Minimizes the loss of oxygenated components
  - (D) Not used for water and water-steam distillation
33. In Satellite Steam generation :
- (A) Amount of Steam can be easily controlled
  - (B) Amount of Steam can not be controlled
  - (C) Plant material is heated higher than 100°C
  - (D) Amount of Steam can be easily controlled and plant material is heated higher than 100°C
34. Terpenes and terpenoids are :
- (A) Secondary constituents of Essential oils
  - (B) Primary constituents of essential oils
  - (C) Are not present in essential oils
  - (D) Not reacting easily with air and heat sources
35. Absolute of emyleurage is :
- (A) Dark colour, semisolid consistency
  - (B) Light colour, liquid consistency
  - (C) Dark colour, liquid consistency
  - (D) Light colour, having liquid consistency

36. On concentrating extracts (distilling off alcohol) :
- (A) Content of oil increases and fat decreases
  - (B) Content of oil decreases and fat increases
  - (C) Content of oil and fat increases correspondingly
  - (D) Content of oil and fat decreases
37. In extraction with volatile solvents :
- (A) Solvent does not penetrate the flowers and dissolves the natural flower perfumes
  - (B) Solvent penetrate the flowers and dissolves the natural flower perfumes
  - (C) Solvent penetrate the flowers and does not dissolve the natural flower perfumes
  - (D) Solvent does not penetrate the flower and dissolves waxes
38. Ideal Solvent should possess :
- (A) Does not completely and quickly dissolved odoriferous principles of flowers
  - (B) Should have high B.P
  - (C) Must dissolve water
  - (D) Must be chemically inert, have uniform boiling point
39. Alcohol as a Solvent :
- (A) Can be used for extraction of oil from fresh flowers
  - (B) Can not be used for extraction of oil from fresh flowers
  - (C) Can not dissolves the H<sub>2</sub>O contained in the plant materials
  - (D) Can not be used for extraction of leaves, gums etc.
40. Prepared fat corp is :
- (A) Black, rough, non uniform consistency
  - (B) Black, smooth, non-uniform consistency
  - (C) White, smooth, absolutely of uniform consistency
  - (D) White, rough, non-uniform consistency

41. Success of infleurage depends upon :
- (A) Quality of fat base employed and its consistency
  - (B) Softness of fat corp
  - (C) Hardness of fat corp
  - (D) Quality of fat base with very soft fat base
42. Most highly saturated pomade is :
- (A) Pomade number 24
  - (B) Pomade number 20
  - (C) Pomade number 36
  - (D) Pomade number 28
43. Total yield of highly saturated pomade is less than the fat corps originally applied to the chasis :
- (A) 20%
  - (B) 40%
  - (C) 5%
  - (D) 10%
44. Specific gravity of EOs at 15°/25° may be defined as ratio of :
- (A) Weight of given vol. of oil at 15°C to that of equal vol. of water at 25°C
  - (B) Weight of oil at 25°C and weight of water at 150°C
  - (C) Weight of oil and water weight at 15°C
  - (D) Weight of given vol. oil and water at 15°C

45. Rotation angle does not depends upon :
- (A) Nature of liquid
  - (B) Column length through which light passes
  - (C) Wavelength of light used and temperature
  - (D) Pressure used
46. Molecular refractivity is influenced by :
- (A) Presence of double and triple bond
  - (B) No effect of double and triple bond
  - (C) Presence of single bond
  - (D) No effect of any type of bond
47. Generally most essential oil is :
- (A) Highly soluble in water and alcohol
  - (B) Slightly soluble in water and immiscible with absolute alcohol
  - (C) Slightly soluble in water and miscible with absolute alcohol
  - (D) Highly soluble in water and immiscible in alcohol
48. Following methods are not used for solubility in non-alcoholic media :
- (A)  $\text{CS}_2$  solubility for presence of water
  - (B) Potassium hydroxide solubility for phenol-containing oil
  - (C) Sodium bi Sulfide solubility for aldehyde containing oil
  - (D) Sodium hydroxide solubility for aldehyde containing oil

49. Congealing point is a temperature :
- (A) At which oil starts flowing
  - (B) At which oil ceases to flow
  - (C) Does not have any effect in viscosity of oil
  - (D) At which oil becomes solid
50. High evaporation residue indicates :
- (A) Addition of foreign materials
  - (B) Pure essential oil
  - (C) Addition of useful materials
  - (D) Removal of useful materials
51. Which of the following is auxochrome ?
- (A) - NH<sub>2</sub>
  - (B) - NO<sub>2</sub>
  - (C)  $\text{—}\overset{\text{O}}{\parallel}\text{—H}$
  - (D) None of the above
52. Which of the following is chromophore ?
- (A) - OH
  - (B) - NH<sub>2</sub>
  - (C) - NO<sub>2</sub>
  - (D) - S<sub>4</sub>
53. Due to bathochromic shift, the  $\lambda_{\text{max}}$  of the compound :
- (A) Decreases
  - (B) Increases
  - (C) Remain unchange
  - (D) All of the above

54. By the introduction of  $-NH_2$  group to the nitro compound causes :
- (A) Bathochromic Shift
  - (B) Hypsochromic Shift
  - (C) Hypochromic Shift
  - (D) Hyper chromic Shift
55. The method of dyeing depends upon the factor :
- (A) Type of the dye
  - (B) Nature of the dye
  - (C) Types of the fibre
  - (D) All of the above
56. The acidic dye is :
- (A) Martius yellow
  - (B) Medolas blue
  - (C) Methylene blue
  - (D) None of the above
57. Direct dyeing depends upon the factor :
- (A) Absorptive power of the fibre
  - (B) Nature of the fibre
  - (C) Dyeing conditions
  - (D) All of the above
58. Vat dyeing is good method for :
- (A) Cotton
  - (B) Silk
  - (C) Wool
  - (D) None of the above

59. Congo red is :
- (A) Vat dye
  - (B) Mordant dye
  - (C) Substantive dye
  - (D) Disperse dye
60. The basic operation of the dyeing process in values :
- (A) Preparation of the dye bath
  - (B) Preparation of the fibre
  - (C) Application of the dye
  - (D) All of the above
61. Application of the dye depends upon the factors :
- (A) Nature of dye
  - (B) Absorptive power of fibre
  - (C) Conditions of the dyeing
  - (D) All of the above
62. Which of the following dyes are classified on the basis of mode of application ?
- (A) Azo dyes
  - (B) Nitro dyes
  - (C) Acid dyes
  - (D) None of the above
63. Which of the following dyes are classified on the basis of chemical constitution ?
- (A) Acid dyes
  - (B) Basic dyes
  - (C) Mordant dyes
  - (D) Nitro dyes

64. Naphthol green Y contains :
- (A) – OH and – NO<sub>2</sub> groups
  - (B) – OH and – NO groups
  - (C) – OH and – N=N- groups
  - (D) – OH and – SO<sub>3</sub>H groups
65. In the formation of nitro dyes, the intermediate formed by the reaction of H<sub>2</sub>SO<sub>4</sub> and HNO<sub>3</sub> is :
- (A) NO<sub>2</sub><sup>⊕</sup>
  - (B) SO<sub>3</sub>
  - (C) CH<sub>2</sub>!
  - (D) All of the above
66. In the formation of azo dyes, the reaction of aromatic primary amine with NaNO<sub>2</sub> at 0-5°C gives :
- (A) R-NH<sub>2</sub>
  - (B) R-COOH
  - (C) R-N=N-Cl
  - (D) All of the above
67. Picric acid contains :
- (A) Three-NO<sub>2</sub> and one – OH groups
  - (B) Two-NO<sub>2</sub> and two – OH groups
  - (C) One-NO<sub>2</sub> and three – OH groups
  - (D) All-NO<sub>2</sub> groups
68. The IUPAC name of Naphthol yellow-s is :
- (A) 2,3 - dinitro-1- naphthol-7-Sulphonic acid
  - (B) 2,4 - dinitro-1- naphthol-7-Sulphonic acid
  - (C) 2,5 - dinitro-1- naphthol-7-Sulphonic acid
  - (D) 2,6 - dinitro-1- naphthol-7-Sulphonic acid



69. Martius yellow is synthesized by the reaction of  $\alpha$  - naphthol with :
- (A)  $\text{H}_2\text{SO}_4$  only
- (B)  $\text{HNO}_3$  only
- (C)  $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$
- (D) None of the above
70. Methyl orange contains :
- (A) -  $\text{SO}_3 \text{ Na}$ , -  $\text{N}=\text{N}$ -and - $\text{N}(\text{Me})_2$  groups
- (B) -  $\text{SO}_3 \text{ Na}$ , -  $\text{N}=\text{N}$  - and -  $\text{NH}_2$  groups
- (C)  $\text{SO}_3 \text{ Na}$ , -  $\text{N}=\text{N}$  - and -  $\text{OH}$  groups
- (D) -  $\text{SO}_3 \text{ Na}$ , -  $\text{N}=\text{N}$  - and -  $\text{SH}$  groups
71. The colour of methyl orange in acidic medium is :
- (A) Yellow
- (B) Red
- (C) Blue
- (D) Orange
72. Which of the following functional group is present in methyl red ?
- (A) -  $\text{NO}_2$
- (B) -  $\text{COOH}$
- (C)  $\text{SH}$
- (D)  $\text{CH}_3\text{C}(=\text{O})\text{Me}$

73. The dyes contain – OH or – COOH radicals attached to azo anthracene complex are called :
- (A) Acid dyes
  - (B) Basic dyes
  - (C) Direct dyes
  - (D) Mordant dyes
74. Which of the following dyes can not dye animal and vegetable fibres directly ?
- (A) Mordant dyes
  - (B) Acid dyes
  - (C) Direct dyes
  - (D) Vat dyes
75. Alizarin belongs to the class of :
- (A) Vat dyes
  - (B) Mordant dyes
  - (C) Substantive dyes
  - (D) Reactive dyes

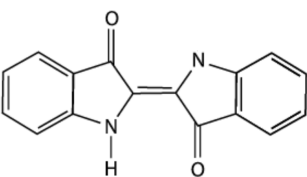
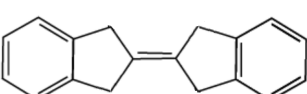
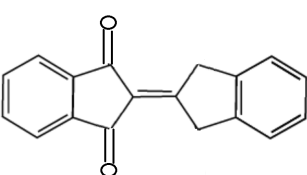
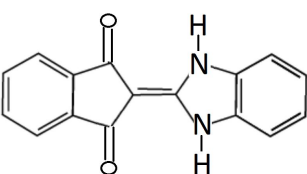
76. Which of the following is an example of basic dye ?

- (A) Alizarin
- (B) Malachite green
- (C) Indigo
- (D) Orange I

77. Which of the following is a vat dye and after used in dyeing gears ?

- (A) Indigo
- (B) Alizarin
- (C) Picric acid
- (D) Crystal Violet

78. Structure of indigo dye is :

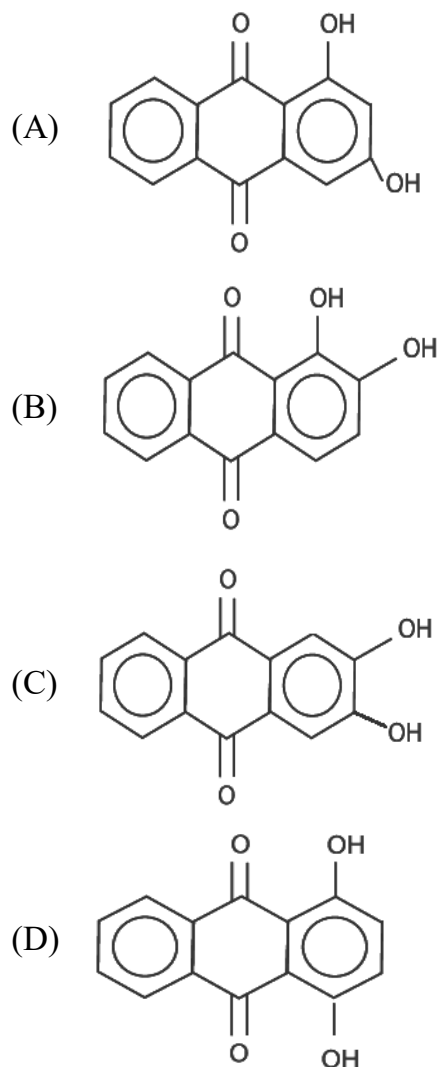
- (A) 
- (B) 
- (C) 
- (D) 

79. Disperse dyes contain:
- (A) Anthraquinone unit
  - (B) Naphthalene unit
  - (C) Phenanthrene unit
  - (D) Anthracene unit
80. Which one is disperse dye ?
- (A) Congored
  - (B) Alizarin
  - (C) Celliton
  - (D) None of the above
81. Malachite green is a direct dye for silk and wool. It is prepared by condensing :
- (A) Benzaldehyde by dimethyl aniline
  - (B) Carbonyl chloride and dimethyl aniline
  - (C) Benzene diazonium chloride with dimethyl aniline
  - (D) None of the above
82. Indigo shows is trans isomerism. Which is the stable form of Indigo ?
- (A) Cis
  - (B) Trans
  - (C) Either is or trans
  - (D) Both of the above

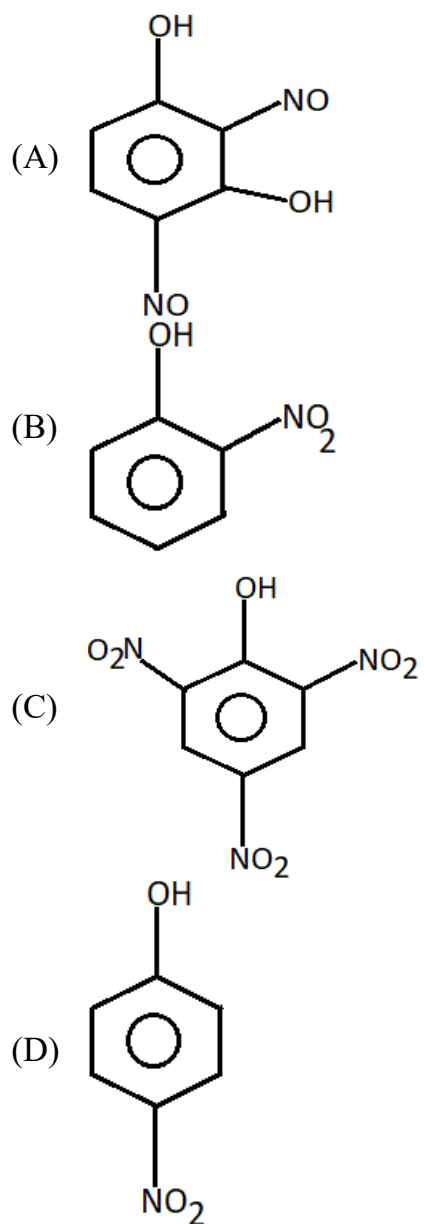
83. Which of the following is an azo dye ?

- (A) Orange-1
- (B) Phenolphthalein
- (C) Malachite green
- (D) Methylene blue

84. The chemical structure of Alizarin is :



85. The example of nitro so dye is :



86. Resins are classified into following sub classes except :

- (A) Acid
- (B) Ester
- (C) Resin alcohol
- (D) Resin ether

87. Which is not an example of acid resins ?
- (A) Benzoin
  - (B) Colophony
  - (C) Sandrac
  - (D) Myrrh
88. Glyco resins are made up of :
- (A) Resins + Sugar
  - (B) Resins + Volatile oil
  - (C) Resins + Gum
  - (D) Resins + Fixed oil
89. Resins containing benzoic acid or cinnamic acids are called :
- (A) Oleoresins
  - (B) Glycoresins
  - (C) Oleo gum
  - (D) Balsam
90. The quantity of drier in paints is limited to :
- (A) 2%
  - (B) 4%
  - (C) 6%
  - (D) 8%
91. What is the full form of PVCN with respect of paint ?
- (A) Pigment volume concentration number
  - (B) Paint volume concentration number
  - (C) Paint volume carbon number
  - (D) Pigment volume carbon number

92. Which of the following is the most fire resistant paints ?
- (A) Enamel paints
  - (B) Aluminium paints
  - (C) Asbestos paints
  - (D) Cement paints
93. Which one of the following is used as a carrier in paint ?
- (A) Almond oil
  - (B) Linseed oil
  - (C) Mustard oil
  - (D) Olive oil
94. The ingredient of paint. Which are used to hide the surface irregularities and imparts colour is known as :
- (A) Adult rants
  - (B) Drier
  - (C) Pigments
  - (D) Solvents
95. The commonly used thinner in oil paints is :
- (A) Naphtha
  - (B) Turpentine
  - (C) Both (A) and (B)
  - (D) None of above
96. The base material for distemper is :
- (A) Chalk
  - (B) Lime
  - (C) Clay
  - (D) Lime putty



97. In paints, methylated spirit, naphtha and turpentine are used as :
- (A) Base
  - (B) Binder
  - (C) Solvent
  - (D) Extender
98. Paint should provide resistance to :
- (A) Corrosion
  - (B) Sound
  - (C) Heat
  - (D) Warping
99. Which of the following is a characteristic of an ideal paint ?
- (A) Health of the worker is un affected
  - (B) Costly
  - (C) Pleasant smell
  - (D) Dries rapidly
100. The component filler in paint does the function of :
- (A) Absorbing oxygen
  - (B) Reducing cost
  - (C) Consistency
  - (D) Smooth spreading

\*\*\*\*\*

## **Rough Work / रफ कार्य**

## **Rough Work / रफ कार्य**

**DO NOT OPEN THE QUESTION BOOKLET UNTIL ASKED TO DO SO**

1. Examinee should enter his / her roll number, subject and Question Booklet Series correctly in the O.M.R. sheet, the examinee will be responsible for the error he / she has made.
2. **This Question Booklet contains 100 questions, out of which only 75 Question are to be Answered by the examinee. Every question has 4 options and only one of them is correct. The answer which seems correct to you, darken that option number in your Answer Booklet (O.M.R ANSWER SHEET) completely with black or blue ball point pen. If any examinee will mark more than one answer of a particular question, then the first most option will be considered valid.**
3. Every question has same marks. Every question you attempt correctly, marks will be given according to that.
4. Every answer should be marked only on Answer Booklet (O.M.R ANSWER SHEET). Answer marked anywhere else other than the determined place will not be considered valid.
5. Please read all the instructions carefully before attempting anything on Answer Booklet (O.M.R ANSWER SHEET).
6. After completion of examination please hand over the Answer Booklet (O.M.R ANSWER SHEET) to the Examiner before leaving the examination room.
7. There is no negative marking.

**Note:** On opening the question booklet, first check that all the pages of the question booklet are printed properly in case there is an issue please ask the examiner to change the booklet of same series and get another one.