This Question Paper contains 12 Printed Pages. S.S.

Sl. No. 903830

N-10(E)

(MARCH, 2012)

પ્રશ્ન પેપરનો સેટ નંબર Set No. of Question Paper
9

PART - A

Time : 75 minutes] ***[Maximum Marks : 50***

Instructions :

(1) There are **50** objective type questions in this part and **all** are **compulsory**.

(2) The questions are serially numbered from **1** to **50** and each carries **1** mark.

(3) You are supplied with separate OMR sheet with the alternatives (A) ○, (B)○, (C) ○, (D) ○ against each question number. For each question, select the correct alternative and darken the circle ○ as ● completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.

- From the following **1** to **50** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against the number in OMR sheet.
- Each question carries **1** mark.

1. In Gujarat where are small and big Agate (Akik) stones are found ?
(A) Jaipur (B) Raipur
(C) Ranpur (D) Khadagpur

2. Which book of Kalidas did impress the German poet Goethe very much ?
(A) Malvikagnimitram. (B) Ritusamhar.
(C) Vikramovarshiyam. (D) Abhigyana Shakuntalam.

3. Which characteristic is irrelevant in the below given distinguishing characteristics of Indian culture ?
(A) Longevity and continuity.
(B) Unity in diversity.
(C) Intolerance.
(D) Spirituality and materialism.

4. Since whose time, the mountains have been considered to be adorable ?
(A) Nordic (B) Negroid
(C) Nishad (D) Kirat

5. Arrange the celebration days in a proper order and select the correct optio

(a)	21 March	-	(1) World Bio-diversity Day.
(b)	4 October	-	(2 The World Environment Day.
(c)	29 December	-	(3) The World Animal Welfare Day.
(d)	5 June	-	(4) World Forestry Day.

(A) *a*-4, *b*-3, *c*-2, *d*-1

(B) *a*-3, *b*-2, *c*-4, *d*-1

(C) *a*-4, *b*-3, *c*-1, *d*-2

(D) *a*-4, *b*-1, *c*-3, *d*-2

6. In areas where the rainfall is low and irrigation facilities are inadequate, the land farming carried out there is known as .....

(A) Shifting agriculture (B) Wet -farming

(C) Dry farming (D) Biological farming

7. Which matter is necessary for Plantation Agriculture ?

(A) Technical knowledge.

(B) Machines, irrigation, fertilizer.

(C) Transport facility.

(D) All the three above mentioned matters.

8. In which district, groundnut is grown in maximum quantity in Gujarat ?

(A) Jamnagar (B) Amreli

(C) Rajkot (D) Junagadh

9. Which region differs on the basis of crops and regions in the below given pai

(A) Wheat - Bhal region.

(B) Cotton - Golden leaf region.

(C) Tobacco - Charotar region.

(D) Sugarcane - South Gujarat and Saurashtra.

10. Which disadvantage is there due to economic liberalization ?

(A) There is rise in foreign exchange.

(B) Industrial production is increased.

(C) Our capacity to compete is strengthened in the World trade.

(D) There is rise in economic inequality.

11. In the planning for growth of economic development, which sector is given a responsibility ?

(A) Private sector (B) Public sector

(C) Joint sector (D) Co-operative sector

12. Which fuel should be used to control Pollution ?

(A) Natural gas (B) Petrol

(C) Diesel (D) Kerosene

13. On which commodity the Government can not pass ordinance and raise prices ?

(A) Petroleum products (B) Vegetables

(C) Electricity (D) Natural gas

14. Which international organization certifies edible articles ?

(A) FAO (Food & Agriculture Organization).

(B) WHO (World Health Organization).

(C) ISI (Indian Standards Institute).

(D) CAC (Codex Alimentarius Commission).

15. In which institutions, 33% seats are reserved for women ?

(A) All Educational organizations.

(B) Local Self -Govt. institutions.

(C) Parliament and Vidhan Sabhas.

(D) Public Sector institutions.

16. India is spirituality oriented country, so .....

(A) The Indian Art is always non secular.

(B) The Indian Art is always based on religion.

(C) The Indian Art is always dynamic.

(D) The Indian Art is always alive.

17. Where are the remains of perfect town planning found in Gujarat

(A) Mohenjo-Daro (B) Harappa

(C) Dholaveera (D) Siddhpur

18. Match the correct option from the below given pairs.

(a)	Rani Sippri Mosque	- (1)	Patan.
(b)	Hira Bhagol	- (2)	Siddhpur.
(c)	Rudra Mahal	- (3)	Dabhoi.
(d)	Ranki Vav	- (4)	Amdavad

(A) *a*-4, *b*-2, *c*-3, *d*-1

(B) *a*-4, *b*-2, *c*-1, *d*-3

(C) *a*-4, *b*-1, *c*-3, *d*-2

(D) *a*-4, *b*-3, *c*-2, *d*-1

19. In which Article are Granted Languages included in the Indian Constitution ?

(A) Fifth (B) Sixth

(C) Eighth (D) Seventh

20. A noted Western critic Sir William Hunter, speaking on Indian Medical Science says -

(A) "The Indian medical science covers the whole topic of medi science."

(B) "It describes in detail about making of medicines."

(C) "It analyses medicines and gives instruction about their use

(D) All above mentioned three points are covered.

21. Which city in Punjab is not the centre of Woolen Textile Industry ?

(A) Amritsar (B) Dhariwal

(C) Gurgaon (D) Ludhiana

22. Which industry is irrelevant to the centre of production ?

(A) Textile Industry - Amdavad.

(B) Fertilizer Industry - Sindri.

(C) Ship building - Vadodara.

(D) Cement Industry - Chennai.

23. Which one is not rail-line on the basis of width of Gauge ?

(A) Metro-rail (B) Broad-guage

(C) Metre-guage (D) Narrow-guage

24. If the total income of the country is divided by the total population, then the obtained total average income of an individual is known as .....

(A) Annual income (B) Per capita income

(C) Daily income (D) Family income

25. In the below given group of countries, which group has minimum income from agriculture ?

(A) India, Nepal, Sri Lanka. (B) Malaysia, Indonesia, Bhutan.

(C) Brazil, Argentina, Chile. (D) America, Britain, Japan.

26. Which one of the following statements is wrong in context of effect of World Trade Organization on Indian economy ?

(A) It will increase the trade regarding export of Indian clothes and readymade garments.

(B) India's contribution will rise in the World trade.

(C) Efficiency will increase due to new technology.

(D) Export of agricultural product will decrease.

27. Which is an obstacle for the development of an individual, a society and a country ?

(A) Goodwill (B) Secularism

(C) Communalism (D) National integration

28. In which other religion, untouchability was observed besides Hinduism ?

(A) Buddhism (B) Jainism

(C) Sikhism (D) Christianity

29. Which factor is not suitable in the establishment of National Commission for the Scheduled Castes and Scheduled Tribes ?

(A) To supervise the matter regarding their protection.

(B) To enquire the complaints regarding their rights.

(C) To guide for planning schemes for social and economic development.

(D) To report to the P.M.

30. What kind of problem is Terrorism ?

(A) Local problem (B) Global problem

(C) Regional problem (D) National problem

31. What is the inevitable characteristic of a Citizen ?

(A) Duty (B) Rights

(C) Communalism (D) Regionalism

32. What is the main reason for the Child labour ?

(A) Unemployment (B) Population growth

(C) Poverty (D) Corruption

33. Of which university did the learned Buddhist Acharya Nagarjun advocate the use of allopathy along with herbal medicines ?

(A) Takshashila (B) Vallabhi

(C) Vikramshila (D) Nalanda

34. Who built the largest door Buland Darwaja of the World ?

(A) Babar (B) Humayun

(C) Akbar (D) Shah Jahan

35. 'People with a pure heart are welcome in the garden of paradise.' Where this saying is inscribed ?

(A) On the arch of the fort of Agra.

(B) On the Humayun-tomb.

(C) On the wall of Pearl Mosque (Moti Masjid).

(D) On the grave of Mumtaz in the Taj Mahal.

36. Who was the last ruler of the Vijayanagar empire ?

(A) Ramraya (B) Krishnadevraya

(C) Harihar Rai (D) Bukkarai

37. Which of the following pairs is wrong ?

(A) Pongal - Tamilnadu (B) Bihu - Assam

(C) Onam - Kerala (D) Gangaur - Punjab

38. Which foreigners had come to an island, whose part is Elephanta caves ?

(A) The English (B) The French

(C) The Portuguese (D) The Danish

39. To which department one should inform if any citizen suddenly finds any ancient or antique goods while digging ?

(A) The department of Archeology.

(B) The deptt. of museums.

(C) The Mines and Minerals deptt.

(D) Consumer forums.

40. Which one of the following statements is wrong ?
    (A) Punjab and Haryana are ahead in field of irrigation.
    (B) Wells and tube-wells are the main sources of irrigation.
    (C) After independence, irrigation area in the country is developed ten times more.
    (D) In Eastern and Southern states, pond irrigation is a major source.

41. Which mineral is not valuable mineral ?
    (A) Titanium (B) Platinum
    (C) Silver (D) Gold

42. For manufacturing of which vehicle, Bauxite is used ?
    (A) Railway Engines (B) Aeroplanes
    (C) Cycles (D) Buses

43. From the below given options, which one is not a type of Coal ?
    (A) Anthracite (B) Bituminous
    (C) Lignite (D) Haematite

44. Identify me : One statement given below is wrong.
    (A) I am white Coal without smoke — Hydro-electricity.
    (B) I am available in the area of Pandhro in the Kachchh region — Mineral oil.
    (C) I am the main source of energy on the Earth — Solar energy.
    (D) I am the State getting maximum Solar energy — Gujarat.

45. One sector is different from the sectors divided on the basis of Ownership.
    (A) Private sector (B) Public sector
    (C) Partnership (D) Joint sector

46. Which industry does not spread water pollution ?
    (A) Chemical Industry (B) Textile Industry
    (C) Paper Industry (D) Electronic Industry

47. Find out the correct answer from the below given pairs.

(a)	Hemchandracharya Library	- (1)	Bhopal.
(b)	Prince of Wales Museum	- (2)	Hyderabad.
(c)	Salarjung Museum.	- (3)	Mumbai.
(d)	Rashtriya Manav Sangrahalaya	- (4)	Patan.

(A) *a*-4, *b*-3, *c*-2, *d*-1
(B) *a*-4, *b*-2, *c*-3, *d*-1
(C) *a*-4, *b*-3, *c*-1, *d*-2
(D) *a*-4, *b*-1, *c*-2, *d*-3

48. Find out the correct option from the below given pairs.

(a)	Meghalaya	-	(1)	Dev Rahti.
(b)	Jharkhand	-	(2)	Lyngdoh.
(c)	Maharashtra	-	(3)	Eringol Kavoo.
(d)	Kerala	-	(4)	Sarnas and Jeheras.

(A) *a*-2, *b*-3, *c*-1, *d*-4
(B) *a*-2, *b*-1, *c*-4, *d*-1
(C) *a*-2, *b*-4, *c*-3, *d*-1
(D) *a*-2, *b*-4, *c*-1, *d*-3

49. The rocks on which the soils are formed consist of stones, clay and sand particles. It is known as Regolith, in the beginning of which, ... was/were there.

(A) only minerals (B) air
(C) organic substances (D) water

50. Arrange the distribution of forests in descending form (based on percentage).

(A) Andaman and Nicobar, Himalaya mountain regions, Gujarat, Haryana.
(B) Mountain region of Himalayas, Haryana, Gujarat, Andaman and Nicobar.
(C) Andaman and Nicobar, Gujarat, Haryana, Mountain region of Himalayas.
(D) Haryana, Gujarat, Himalaya mountain region, Andaman and Nicobar.

N-10(E)

(MARCH, 2012)

PART - B

Time : 2 Hours] ***[Maximum Marks : 50***

Instructions :-

(1) There are **four** sections in this part of the question paper and total **1** to **18** questions are there.

(2) **All** the questions are **compulsory**. Internal options are given.

(3) Question No. **18** is Map-filling. Separate questions are given for **Blind Students.**

(4) Start new section from new page.

SECTION - A

*Questions **1** to **5** carry equal marks. Each carries **2** marks.*
Answer the following questions as required.

1. Why have the Indian rivers remained reverential as 'Lokmata' since ancient time ? **2**

2. Write on the drainage system of Mohenjo-Daro. **2**

OR

2. Write a few lines on the Khajuraho temples.

3. What is the contribution of the citizens in the protection of our heritage ? **2**

4. What is Soil erosion ? **2**

5. Give reasons : There is a Green-revolution in the field of agriculture. **2**

OR

5. Write something about technical reforms in the area of agriculture in India.

SECTION - B

Answer the following questions as required : 2 marks each.

6. State the method for rainwater harvesting. **2**

7. Write the difference between Anthracite and Bituminous coal. **2**

8. Write a short note on Sugar Industry. **2**

9. Show the difference between Capitalistic and Socialistic system of economy. **2**

10. Write about the Fundamental Rights of the citizen. **2**

SECTION - C

Answer the following questions as required :
(3 marks each).

11. Write on Weaving and Embroidery in ancient India. **3**

12. Write on the heritage of Science in ancient India. **3**

OR

12. Write a short note on Vastu-shastra.

13. Write on the importance of Forests. **3**

14. Write about Black-money, Smuggling and Hoarding. **3**

15. Mention various criteria for measuring Human Development. **3**

OR

15. What steps are taken in Gujarat regarding women empowerment ?

SECTION - D

Answer the following questions as required :
(5 marks each).

16. Write in short on Gupta, Buddhist and Gujarati literature in ancient India. **5**

17. Write a short note on World Labour Market. **5**

OR

17. Planning of Human labour.

18. Mark the following details at proper places by proper symbols in the outline map of India given to you. **5**

(1) One region growing Sugarcane.

(2) One area where Copper is found.

(3) The Bhakranangal Dam Multipurpose project.

(4) One centre of Iron and Steel industry. (Show along with name)

(5) Delhi to Mumbai railway route. (Via Amdavad).

Only for Blind candidates :

18. *Answer the following questions in place of Map filling :-*

(1) Which is the leading sugar growing state in India ?

(2) Name any one state producing Copper.

(3) Which states do get benefit of irrigation due the Bhakranangal project ?

(4) Name one centre of Iron and Steel industry.

(5) Name two junctions on the rail route between Delhi and Mumbai.

This Question Paper contains 12 Printed Pages. Science & Tech

Sl. No. 904008

N-11 (E)

(MARCH, 2012)

પ્રશ્ન પેપરનો સેટ નંબર Set No. of Question Paper
9

PART - A

Time : 75 minutes] ***[Maximum Marks : 50***

Instructions :

(1) There are **50** objective type questions in this part and **all** are **compulsory**.

(2) The questions are serially numbered from **1** to **50** and each carries **1** mark.

(3) You are supplied with separate OMR sheet with the alternatives (A) ○, (B)○, (C) ○, (D) ○ against each question number. For each question, select the correct alternative and darken the circle ○ as ● completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.

- From the following **1** to **50** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against the number in OMR sheet.
- Each question carries **1** mark.

1. Who invented the simple battery first ?

(A) Faraday (B) Ohm

(C) Volta (D) Alva Edison

2. Which of the following oxide is not a neutral oxide ?

(A) CO (B) N_2O

(C) H_2O (D) SO_2

3. What is IUPAC name of Acetone ?

(A) Propanal (B) Propanone

(C) Propanol (D) Propanoic acid

4. What is the diameter of nano-shells which are attached only to Cancerous cells ?

(A) 400 nm (B) 200 nm

(C) 100 nm (D) 50 nm

5. Which metal causes Minamata disease ?

(A) Copper (B) Lead

(C) Manganese (D) Mercury

6. What is the chemical formula of Silver glance ?

(A) AgCl (B) Ag_2S

(C) SiO_2 (D) $AgNO_3$

7. Which organic compounds contains —OH functional group ?

(A) Carboxylic acid (B) Ketone

(C) Aldehyde (D) Alcohol

8. What is the atomic number of Transuranic elements ?

(A) $Z = 92$ (B) $Z < 92$

(C) $Z > 92$ (D) $Z \leq 92$

9. Give the name of theory proposed by Ernst Haeckel.

(A) Theory of germplasm (B) Theory of mutation

(C) Theory of recapitulation (D) Theory of natural selection

10. Which space shuttle met with an accident at the time of landing, in which Indian Astronaut Kalpana Chawla died in February 2003 ?

(A) Colombia (B) Challenger

(C) Discovery (D) PSLV

11. Which compound is condensation polymer ?

(A) Nylon (B) PVC

(C) Natural Rubber (D) Teflon

12. What will be produced in a reduction reaction of Methanal with H_2 gas in the presence of Pd catalyst ?

(A) CH_3OH (B) C_2H_5OH

(C) C_3H_7OH (D) $C_4H_{10}OH$

13. Which structure is developed in the wall of Uterus to provide nutrition to foetus ?

(A) Amnion (B) Fallopian tube

(C) Umbilical cord (D) Placenta

14. Pons connects which two organs with the help of transverse band of nerves ?

(A) Nerves of brain and spinal cord.

(B) Both the cerebral hemispheres.

(C) Cerebellum and Central nervous system.

(D) Sympathetic and Parasympathetic.

15. Which of the following hormones is responsible for shedding of leaves in plants ?

(A) Abscisic acid (B) Gibberellin

(C) Cytokinin (D) Auxin

16. Which metal of the following metals is more active ?

(A) Mg (B) Zn

(C) Ca (D) Al

17. In which plant, vegetative propagation by leaf takes place ?

(A) Sweet potato (B) Potato

(C) Phalsa (D) Bryophyllum

18. What is the percentage of Carbon in hard steel ?

(A) 0.1 to 0.4 (B) 1.5 to 2.5

(C) 2.5 to 3.5 (D) 0.5 to 1.5

19. When current passes through a conductor, in which direction magnetic field is produced ?

(A) In a direction of current.

(B) In the opposite direction of current.

(C) Circular around the conductor.

(D) Perpendicular to the direction of current.

20. Which organism normally shows asexual reproduction by fragmentation ?

(A) Oscillatoria (B) Amoeba

(C) Paramoecium (D) Penicillium

21. Which material provides the mechanical support to cells of trachea ?

(A) Prothrombin (B) Cellulose

(C) Lignin (D) Pectin

22. How many Light-year away, the Sun is located from the galactic centre ?

(A) 250 (B) 30,000

(C) 22.5 (D) 15,000

23. In which material, Sulphur is soluble ?

(A) Carbon disulphide (B) Bromine

(C) Heavy water (D) Distilled water

24. Give the chemical formula of Calcium sulphate hemihydrate.

(A) $CaSO_4 \cdot 2H_2O$ (B) $CaSO_4 \cdot \frac{1}{2}H_2O$

(C) $CaSO_4 \cdot 10H_2O$ (D) $CaSO_4 \cdot H_2O$

25. Which pair of the following is complementary colours ?

(A) Blue and yellow (B) Green and yellow

(C) Red and magenta (D) Blue and magenta

26. What is the formula for Electric Power ?

(A) $P = I^2Rt$ (B) $P = \frac{W}{t}$

(C) $P = VI \times t$ (D) $P = VQ$

27. What is the name of finger like projections in the small intestine of human ?

(A) Vermiform Appendix (B) Villi

(C) Gizzard (D) Food vacuole

28. Who developed the treatment technique for industrial and sewage waste water ?

(A) NEERI (B) NACO

(C) WHO (D) ISRO

29. Which metal oxide is used to obtain blue coloured glass ?

(A) Ferric oxide (B) Chromium oxide

(C) Manganese oxide (D) Cobalt oxide

30. Which mineral is necessary for blood clotting ?

(A) Calcium (B) Magnesium

(C) Phosphorus (D) Iron

31. By which, hormones are circulated ?

(A) Water (B) Nerve

(C) Blood (D) Cytoplasm

32. Which catalyst is used for the industrial production of Hydrogen ?

(A) Iron (B) Nickel

(C) Vanadium pentoxide (D) Palladium

33. Which satellite is launched by India for Direct to Home (DTH) ?

(A) INSAT - 4 A (B) IRS-1

(C) METSAT (D) CARTOSAT

34. Which compound is used for bleaching cloths in laundry ?

(A) Bleaching Powder (B) Washing Powder

(C) Baking Powder (D) Plaster of Paris

35. Which planet has atmosphere up to 1% of the atmosphere of the Earth ?

(A) Mars (B) Venus

(C) Jupiter (D) Saturn

36. Give the unit of rate of reaction.

(A) Molar (B) Second

(C) Second/Molar (D) Molar/Second

37. Which plant shows thigmonastic response ?

(A) Sunflower (B) Mimosa

(C) Periwinkle (D) Bryophyllum

38. Which chromosome has satellite ?

(A) Telocentric (B) Metacentric

(C) Acrocentric (D) Sub-metacentric

39. Which scientist gave the law of Active mass ?

(A) Goldberg and Waag. (B) Lowry and Bronsted.

(C) Boyle and Arrhenius. (D) Lewis and Sorensen.

40. Who gave the principle of Electromagnetic induction ?

(A) Volta (B) Ampere

(C) Faraday (D) Oersted

41. Which elements are present in the alloy of Solder ?

(A) Copper and Zinc (B) Copper and Tin

(C) Nickel and Chromium (D) Lead and Tin

42. In spectrum obtained with prism, which colour is deviated maximum ?

(A) Red (B) Yellow

(C) Violet (D) Blue

43. If 0.3 A current passes through a lamp, how many electrons will pass in 60 seconds ? ($e = 1.6 \times 10^{-19}$)

(A) 2.88×10^{20} (B) 1.125×10^{20}

(C) 2.25×10^{20} (D) 1.8×10^{20}

44. Which device is used to convert electric energy into a mechanical energy ?

(A) Electric generator (B) Solenoid

(C) Electric motor (D) Electric iron

45. Which organs perform the same function but structurally different ?

(A) Homologus organs.

(B) Analogus organs.

(C) Vestigial organs.

(D) Structurally homogeneous organs.

46. How much the temperature of Scrotum in male is lower than the temperature of the body ?

(A) 0° C (B) 3° C

(C) 34° C (D) 37° C

47. Rays of light are entering from glass to glycerine. If refractive indexes of glass and glycerine are respectively 1.5 and 1.47, find the refractive index of glycerine with respect to glass.

(A) 0.03 (B) 1.02

(C) 2.20 (D) 0.98

48. At which place in eye, image is formed of a person having far-sightedness (hypermetropia) ?

(A) On retina (B) Behind retina

(C) Infront of retina (D) On lens of eye.

49. In Sponges, which structure is used for excretion ?

(A) Contractile vacuole (B) Flame cells

(C) Nephridia (D) Osculum

50. At which depth, we get necessary temperature for OTEC in oceans ?

(A) 0 m to 20 m (B) 100 m to 300 m

(C) 400 m to 600 m (D) 700 m to 900 m

N-11 (E)

(MARCH, 2012)

PART - B

Time : 2.00 Hours] ***[Maximum Marks : 50***

Instructions :-

(i) There are total **four** sections in this part.

(ii) **All** questions are **compulsory.**

(iii) Draw neat labelled diagram as per instructions.

(iv) There are internal options in some questions. Pay attention to them.

(v) Figures to the right indicate marks.

SECTION - A

Give short answer (in limit of 30 words) of the following questions.

1. At which temperature range; Petrol, Diesel, Kerosene and lubricating oil is obtained in fractional distillation of Petroleum ? **2**

2. What is Molarity ? Give its unit. **2**

OR

2. What is slow and fast reaction ? Give example.

3. Why Carbon is important in development of Nano-technology ? **2**

4. Give the definition of Solar constant and its value. **2**

OR

4. Write the name of various types of Coal and give the percentage of Carbon in each.

5. Give short information about Mercury. **2**

SECTION - B

Write short answer (in the limit of 30 words) of the following questions.

6. Calculate the pH of 0.04 M aqueous solution of NaOH.
($\log_{10} 4 = 0.6021$) **2**

7. Write uses of Baking powder ($NaHCO_3$). **2**

8. How pure water can be obtained by sewage treatment ? **2**

9. Write the process of making Ethyl acetate by esterification with equation. **2**

OR

9. Write difference between Soap and Detergent.

10. Give short information regarding Spinal cord of human. **2**

SECTION - C

Write answers in short (in the limit of 50 words) of the following questions.

11. Explain the work of an Electric Generator with diagram. **3**

12. Explain allotropes of Sulphur. **3**

OR

12. Complete the following chemical reactions :

(i) $S_{(s)} + 2H_2SO_{4(aq)} \rightarrow$

(ii) $SO_{2(g)} + 2H_2S_{(g)} \rightarrow$

(iii) $H_2S_2O_{7(l)} + H_2O_{(l)} \rightarrow$

13. Describe Erythrocyte (RBC) in short. **3**

14. Explain Sex determination. **3**

15. Explain Electroplating with suitable example. 3

OR

15. Explain series connections of Resistors and derive the formula of equivalent resistance.

SECTION - D

Write the answer of the following questions in detail (in the limit of 100 words).

16. Derive lens formula $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$. 5

17. What is concentration or enrichment of Ore ? Explain the method of enrichment of ore containing Sulphide with diagram. 5

OR

17. Explain Bayer's method for obtaining Alumina from Bauxite with equations.

18. Write short note : Aerobic respiration and Anaerobic respiration. 5

OR

18. What is Nutrition? Describe nutrition in Amoeba. (Draw diagram).

This Question Paper contains 16 Printed Pages.

Maths

પ્રશ્ન પેપરનો સેટ નંબર Set No. of Question Paper
8

Sl. No.

N-12(E)

803326 (MARCH, 2012)

PART - A

Time : 75 minutes] ***[Maximum Marks : 50***

Instructions :

(1) There are **50** objective type questions in this part and **all** are **compulsory.**

(2) The questions are serially numbered from **1** to **50** and each carries **1** mark.

(3) You are supplied with separate OMR sheet with the alternatives (A) ○, (B) ○, (C) ○, (D) ○ against each question number. For each question, select the correct alternative and darken the circle ○ as ● completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.

- From the following **1** to **50** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against the number in OMR sheet.
- Each question carries **1** mark.

[Space for Rough Work]

1. Opposite angles of Cyclic quadrilateral which is also a rectangle can not be .....
(A) Complementary angles.
(B) Supplementary angles.
(C) Congruent angles.
(D) Right angles.

2. If ⊙(P, 4) and ⊙(Q, 2) touch each other internally,
then PQ = ...
(A) 1 (B) 5
(C) $\sqrt{13}$ (D) 2

3. The volume of a hemisphere having radius 3 cm is ... cm^3.
(A) 12π (B) 14π
(C) 18π (D) 21π

4. The formula to find volume of a Cone is .....
(A) $\frac{1}{3}\pi r^2 h$ (B) $\frac{4}{3}\pi r^2 h$
(C) $\pi r^2 h$ (D) $\frac{1}{3}\pi r^3$

5. The simple interest on Rs. 20,000 for 1 month at the rate of ..... % is Rs.200.

(A) 12 (B) 18

(C) 20 (D) 24

[Space for Rough Work]

6. The full amount which is to be paid at the time of purchase is called the .....

(A) Instalment

(B) Interest

(C) Cash price

(D) Profit

7. $9 + 19 + 29 + ... + 99 =$ .....

(A) 460 (B) 450

(C) 540 (D) 455

8. The cash price of a watch is Rs. 525. In an instalment scheme, cash down payment is Rs. 225, followed by a monthly instalment of Rs. 310. The interest earned by the shopkeeper is .....

(A) Rs. 300

(B) Rs. 10

(C) Rs. 20

(D) Rs. 30

9. The quadratic equation ..... has its roots 3 and – 2.

(A) $x^2 + x + 6 = 0$

(B) $x^2 + 5x - 6 = 0$

(C) $x^2 + x - 6 = 0$

(D) $x^2 - x - 6 = 0$

10. For ΔPQR and ΔABC correspondence $PQR \leftrightarrow BAC$ is a similarity. If $m\angle P : m\angle Q : m\angle R = 2 : 3 : 4$, then $m\angle A : m\angle B : m\angle C =$ .....

(A) 2 : 3 : 4

(B) 3 : 2 : 4

(C) 4 : 3 : 2

(D) 2 : 4 : 3

[Space for Rough Work]

11. In the formula of Mean, $\bar{x} = A + \frac{\sum f_i d_i}{n} \times c$, then $c =$ .....

(A) Deviation

(B) Class

(C) Class length

(D) Assumed mean

12. The sum of frequencies of a frequency distribution is 50. If $\sum f_i x_i = 122$, the value of mean is .....

(A) 2.44

(B) 24.4

(C) 1.22

(D) 12.2

13. The mean of given data is 50. If each observation is increased by 10 and then divided by 6, ... is the value of new mean.

(A) 10

(B) 60

(C) 5.6

(D) 50

14. The co-ordinates of the midpoint of the line segment joining the points (12, 10) and (0, 8) are .....

(A) (9, 6)

(B) (6, 9)

(C) (12, 0)

(D) (10, 8)

[Space for Rough Work]

15. A pole stands erect on the ground. A wire tied to the top of the pole is affixed at a point on the ground. If the length of the wire is 7m and the wire makes an angle of measure 30° with the ground, then the height of the pole is .....

(A) 7 m

(B) 3.5 m

(C) 14 m

(D) 3 m

16. As observed from the top of the Light house, the angles of depression of two ships A and B anchored in the sea are found to be 25° and 40° respectively, then from the Light house .....

(A) A and B are at equal distance.

(B) The distance of B is more than A.

(C) The distance of A is more than B.

(D) The relation about the distances of A and B can not be determined.

17. If A and B are acute angles and $\tan A = 1$ and $\sin B = \frac{1}{\sqrt{2}}$, then $\cos (A+B)$ = ...

(A) 0

(B) 1

(C) $\sqrt{2}$

(D) $\frac{1}{\sqrt{2}}$

18. $\frac{\sin^4\theta - \cos^4\theta}{\sin^2\theta - \cos^2\theta}$ = ...

(A) 1

(B) 2

(C) 3

(D) 4

19. $\frac{1}{\tan^2\theta} + 1$ = ...

(A) $\text{cosec}^2\theta$

(B) $\sec^2\theta$

(C) $\cot^2\theta$

(D) $\cos^2\theta$

20. The surface area of a football having radius 10 cm is .....

(A) 400π cm^2

(B) 52π cm^2

(C) 103π cm^2

(D) 414π cm^2

21. 1 litre = ... cm^3

(A) 10

(B) 1000

(C) 100

(D) 10000

[Space for Rough Work]

[Space for Rough Work]

22. $\frac{(2x-2)^2}{(1-x)^2} = m$, then m = ...

(A) -2

(B) 2

(C) -4

(D) 4

23. (0, 0), (3·1, 0) and (0, 4·5) are the vertices of a ..... triangle.

(A) Equilateral

(B) Right angled

(C) Isosceles

(D) Acute angled

24. $(-3, -2)$ is in ..... quadrant.

(A) first

(B) second

(C) third

(D) fourth

25. Tangents $\overline{PA}$ and $\overline{PB}$ are drawn from P to $\odot(O, 5)$ and PA = 5, then PB = ...

(A) 4

(B) $\sqrt{10}$

(C) 5

(D) 10

26. The solution set of $2x + 3y + 5 = 0$ and $4x + 6y + 10 = 0$ is .....

(A) $\{(2, 3)\}$

(B) Empty set

(C) infinite

(D) $\{(3, 5)\}$

[Space for Rough Work]

27. If $x + 4$ is one factor of polynomial $x^2 + 7x + m$, then m = ...

(A) 3

(B) 12

(C) 4

(D) 7

28. How is the equation $5y = -2x + 3$ written in standard form ?

(A) $2x + 5y + 3 = 0$

(B) $2x + 5y - 3 = 0$

(C) $2x - 5y = 3$

(D) $2x - 5y - 3 = 0$

29. In a two digit number, if the digit at its unit's place is $(2x - 1)$ and the digit at its ten's place is $(2x+1)$, then the number is .....

(A) $22x + 9$

(B) $19 + 22x$

(C) $22x - 9$

(D) $9x - 22$

30. $\Sigma(x_i - \bar{x}) =$ .....

(A) 10

(B) $\bar{x}$

(C) Σx_i

(D) 0

[Space for Rough Work

31. At the end of the year if more tax is paid from the income of a person, then he gets the money back in the form of .....

(A) T.D.S.

(B) Surcharge

(C) Refund

(D) Education Tax

32. The investment in ..... is not exempted from income under section 80C.

(A) PF

(B) GPF

(C) Mediclaim

(D) LIC

33. Every taxpayer has to pay ..... % of income tax as education cess.

(A) 2

(B) 10

(C) 20

(D) 30

34. If $\Delta XYZ \sim \Delta FDE$, then sides $\overline{XY}$, $\overline{DF}$, $\overline{XZ}$ and ..... are in proportion.

(A) $\overline{DE}$

(B) $\overline{EF}$

(C) $\overline{DF}$

(D) $\overline{YZ}$

35. For ΔDEF and ΔPQR, if $m\angle D = m\angle R$ and ....., then the triangles are similar.

(A) $\frac{DE}{PQ} = \frac{EF}{QR}$ (B) $\frac{DE}{PQ} = \frac{DF}{PR}$

(C) $\frac{DE}{QR} = \frac{EF}{RP}$ (D) $\frac{DE}{PR} = \frac{DF}{RQ}$

36. If for ΔXYZ and ΔMNO, $\frac{XY}{MN} = \frac{XZ}{NO} = \frac{YZ}{MO}$, then ..... is similarity.

(A) $XYZ \leftrightarrow MNO$

(B) $XYZ \leftrightarrow NMO$

(C) $XYZ \leftrightarrow OMN$

(D) $XYZ \leftrightarrow MON$

37. Lengths of diagonals of a Rhombus are 10 and 24. Lengths of its sides are .....

(A) 26

(B) 13

(C) 52

(D) 34

[Space for Rough Work]

[Space for Rough W

38. The reduced form of $\frac{x^3}{x-2} + \frac{8}{2-x}$ is .....

(A) $x^2 + 2x + 4$ (B) $x^2 - 2x + 4$

(C) $x - 2$ (D) $2 - x$

39. The H.C.F. of $p(x) = x^2 - 1$, $q(x) = x^2 + x$ and $r(x) = (x + 1)^2$ is .....

(A) $(x + 1)(x^2 - x)$ (B) $(x + 1)^2$

(C) $(x + 1)$ (D) $(x^2 - x)(x^2 + x)$

40. In the following , ... is not a polynomial in x.

(A) $4x^2 + \sqrt{7}$ (B) $3x^2 - x - 1$

(C) $3x^2 - 5\sqrt{x} + 2$ (D) $3x - 1$

41. The L.C.M. of $(2x^2)^2$, $12x^3 \div 4x^2$ and $\sqrt{2x^2 \times 8x^4}$ is .....

(A) $4x^4$ (B) $3x$

(C) $4x^2$ (D) $12x^4$

42. $\frac{x^3 - 1}{p(x)} = \frac{x^2 + x + 1}{x - 1}$, then $p(x)$ = ...

(A) 1 (B) $x^2 - 1$

(C) $x + 1$ (D) $(x - 1)^2$

43. $\angle APB$ and $\angle AQB$ are the angles of the same segment of $\odot(O, 4)$. If $m\angle APB = 60$, then $m\angle AQB =$.....

(A) 30

(B) 60

(C) 90

(D) 120

[Space for Rough Work]

44. P is in the interior of $\odot(O, 3)$. Then OP = ... is possible.

(A) 3

(B) 5

(C) – 1

(D) 2

45. Union of all radii of a Circle is .....

(A) Circle

(B) Interior of the circle

(C) Radius

(D) {interior of circle} $\cup$ {circle}

46. Lower end of 17 m long staircase is 8 m away from wall. Upper end of staircase will touch the wall at ..... m height.

(A) 12

(B) 18

(C) 15

(D) 144

47. The quadratic equation ..... has a root $x = 3$.

(A) $x^2 - 8x + 15 = 0$

(B) $x^2 + 8x + 15 = 0$

(C) $x^2 - 8x - 15 = 0$

(D) $x^2 + 8x - 15 = 0$

[Space for Rough Work]

48. If D = 0 for the given quadratic equation,

then each root is equal to .....

(A) $\frac{b}{2a}$ (B) $\frac{2b}{a}$

(C) $-\frac{b}{2a}$ (D) $-\frac{2b}{a}$

49. ..... is the value of k, if one of the roots of the quadratic equation $x^2 + 6x + k = 0$ is 4.

(A) 20

(B) 40

(C) – 40

(D) 8

50. If ..... , the roots of the given quadratic equation are real and equal.

(A) D = 0 (B) D = 1

(C) D > 0 (D) D < 0

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(MARCH, 2012)

PART - B

Time : 2 Hours] ***[Maximum Marks : 50***

Instructions :-

(1) There are **four** sections in this part of the question paper and total **1** to **17** questions are there.
(2) **All** the questions are **compulsory.** Internal options are given.
(3) Draw figures wherever required. Retain all the lines of construction.
(4) The numbers at right side represent the marks of the question.

SECTION - A

*Answer the following questions from **1** to **8** in short.*

*Each question carries **2** marks.*

1. Find the solution set of the following pair of linear equations. **2**

$x + 4y = 3$; $3x = 2y + 2$

2. Find H.C.F. of the given polynomials **2**

$p(x) = x^4 - 4x^3 + 4x^2$

$q(x) = x^3 - 4x$

3. Find the L.C.M. of the polynomials

$3x^2 + 5x - 2$ and $3x^2 - 7x + 2$ **2**

4. How many terms are there in the Arithmetic Progression **2**

14, 21, 28, ..., 98 ?

OR

4. Find $T_{15} - T_{10}$ for the Arithmetic Progression

$35\frac{1}{2}, 45\frac{1}{2}, 55\frac{1}{2}, \ldots\ldots\ldots\ldots$

5. In ΔABC, $m\angle B = 90$. $\overline{BM}$ is an altitude. $BM = x + 2$, $AM = x + 7$ and $CM = x$. Find x. **2**

6. $\angle APB$ is an angle inscribed in a semi-circle. $AP = 9$ and $PB = 40$. Find the radius of the circle. **2**

7. Prove that : **2**

$(\sec\theta + \cos\theta)(\sec\theta - \cos\theta) = \tan^2\theta + \sin^2\theta$.

OR

7. Prove that :

$$\frac{\tan 38^\circ}{\cot 52^\circ} + \frac{\operatorname{cosec} 20^\circ}{\sec 70^\circ} = 2 .$$

8. The distance between the points $(3, a)$ and $(4, 1)$ is $\sqrt{10}$. Find the possible values of a. **2**

SECTION - B

*Answer the following questions from No. **9** to **12** with calculations.*
*(Each question is of **3** marks).*

9. Simplify : **3**

$$\left(\frac{x}{x-4} - \frac{4}{x+4}\right) \div \frac{x^3 - 64}{x^2 + 4x + 16} \times \frac{(x-4)^2}{x^2 + 16}$$

OR

9. Obtain the reduced form

$$\frac{x^2 - 3x + 2}{x^3 - 8} \div \frac{x^2 - 9}{x^2 + 7x + 12} \times \frac{x^3 + 2x^2 + 4x}{x^2 + 3x - 4}$$

10. The denominator of a non-zero ratio is 1 less than twice the numerator. **3**

If the sum of the ratio and its reciprocal is $2\frac{4}{15}$, find the ratio.

11. The cost of a Mixture-grinder is Rs. 1000. In an instalment scheme, cash down payment is Rs. 250, followed by four monthly instalments of Rs. 200 each. Find the rate of interest in instalment scheme. **3**

12. The distance between two poles of equal height is 200 m. From a point situated on the line-segment joining their bases, the angles of elevation of their tops are found to be 60 and 30. Find the height of the pole. **3**

SECTION - C

*Answer the following questions from No. **13** to **15**, as directed with the calculations. (Each question is of **4** marks).*

13. The mean of the following frequency distribution is 27. Find the missing frequency. **4**

x_i	5	15	25	35	45
f_i	20	10	f	30	20

OR

13. Marks obtained by 140 students are given in the following distribution. Find the mean by the method of assumed mean.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	20	24	40	36	20

14. A solid is composed of a cylinder with hemispherical both ends. If the total height of the solid is 78 cm and radius of the cylinder is 12 cm, find the capacity of gas filled in it. **4**

15. Prove that "Opposite angles of a Cyclic quadrilateral are supplementary angles". **4**

SECTION -D

*Answer the following questions from No. **16** to **17**. (Each question carries **5** marks).*

16. Prove that "If for ΔABC, $BC^2 = AB^2 + AC^2$, then $\angle A$ is right angle". **5**

OR

16. Prove that "Areas of two similar triangles are proportional to squares of corresponding sides."

17. Draw ΔABC such that AB = 7 cm, BC = 8 cm and CA = 5.5 cm. Draw its circumcircle and write the steps of construction. **5**