

KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD**Malleswaram, Bengaluru- 5600 03****2020-21 MODEL QUESTION PAPER- 1****Subject: Maths, G.Sci, S.Sci****Subject Code : 81E, 83E, 85E****Time: 1.50 hrs.****Max. Marks: 40x3=120****Regular Fresh**

General Instruction to the Candidate:

1. This question Paper consists of objective type 40 questions for each Section.
2. This question Paper Consist of Three section namely, Section A is Mathematics, Section B is G.Science and Section C is Social Science.
3. Each section consist 40 marks.
4. This question paper has been sealed by reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all pages of question paper are intact.
5. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

SECTION : A
MATHEMATICS

- I. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer and mark it with the given OMR Sheets. 40x1=40

1. In an AP, $S_n=3n+5$ then, the value of 'd' is:
 - A) 3
 - B) 5
 - C) -5
 - D) 8

2. The lengths of the diagonals of a rhombus are 16cm and 12cm. Then the length of the side of the rhombus is:
 - A) 9cm
 - B) 10 cm
 - C) 8 cm
 - D) 20 cm

3. The graph of the equations $6x-2y+9=0$ and $3x-y+12=0$ are two lines which are
 - A) Coincident
 - B) Parallel
 - C) Intersecting at one point
 - D) Perpendicular to each other

4. A straight line passing through a point on a circle is
 - A) A tangent
 - B) A secant
 - C) A radius

D) A diameter

5. A funnel is a combination of frustum of cone and

A) Hemisphere

B) Cylinder

C) Sphere

D) Cone

6. Given data:

Class	0-5	5-10	10-15	15-20	20-25
Frequency	10	15	12	20	9

The sum of the lower limits of the median class and modal class is

A) 15

B) 25

C) 30

D) 35

7. If the height and length of the shadow of a man are the same, the angle of elevation of the sun is

A) 30°

B) 60°

C) 45°

D) 15°

8. If $\cos(90^\circ - A) = 0$, then $\sin(A + B) =$

A) 0

B) 2

C) 3

D) None of the above

9. The positive value of K for which both the equations $x^2 + Kx + 64 = 0$ and $x^2 - 8x + K = 0$ have real roots, is

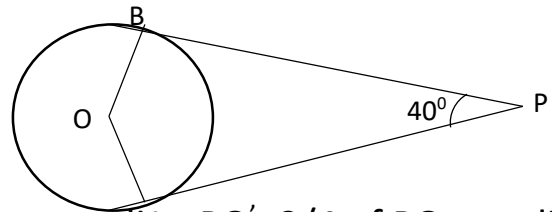
- A) 4
- B) 8
- C) 12
- D) 16

10. The coordinates of a point on the X-axis which lie on the perpendicular bisector of the line segment joining (7,6) and (-3,4) are

- A) (0,2)
- B) (3,0)
- C) (0,3)
- D) (2,0)

11. To draw a pair of tangents to a circle inclined at 40° , the angle at the centre of the circle between the two radii is

- A) 40°
- B) 90°
- C) 140°
- D) 180°



12. Given a triangle with side $PQ=8$ cm. To get a line $PQ'=3/4$ of PQ , we divide the line segment PQ in the ratio

- A) 3:4
- B) 4:3
- C) 1:3
- D) 3:1

13. All _____ triangles are similar.

- A) Scaler
- B) Isosceles
- C) Equilateral
- D) None of the above

14. If $a=10$ and $d=10$, then the value of a_5 is
- A) 20
 - B) 30
 - C) 40
 - D) 50
15. The formula to find the Lateral Surface area of a Sphere is
- A) $\frac{1}{3}\pi r^2 h$
 - B) $4\pi r^2$
 - C) $\pi r (r + l)$
 - D) $3\pi r^2$
16. The cumulative frequency table is useful in determining
- A) Mean
 - B) Mode
 - C) Median
 - D) None of the Above
17. A ladder leaning against a wall makes an angle of 60° with the horizontal. If the foot of the ladder is 2.5m away from the wall, the length of the ladder is
- A) 2m
 - B) 4m
 - C) 5m
 - D) 10m
18. The value of $\sec^2 42^\circ - \operatorname{cosec}^2 48^\circ$ is
- A) 0
 - B) 1
 - C) 2
 - D) Not defined

19. The solution of the pair of linear equation $x+y=14$ and $x-y=4$ are
- A) 2,3
 - B) 5,6
 - C) 9,5
 - D) 0,9
20. The tangent at any point of a circle is _____ to the radius through the point of contact.
- A) Parallel
 - B) Perpendicular
 - C) Tangential
 - D) Square
21. Length of the median through C of triangle ABC with A(4,9) B(2,3) and C(6,5) is
- A) 5 units
 - B) 10 units
 - C) 25 units
 - D) $\sqrt{10}$ units
22. The roots of the equation $x^2-3x-10=0$ are
- A) 0 or 2
 - B) 5 or -2
 - C) -9 or -3
 - D) 10 or -10
23. $\sin^2A + \cos^2A$ is
- A) 0
 - B) 1
 - C) 2
 - D) 3

24. A solid piece of iron of dimensions $49 \times 33 \times 24$ is moulded into a sphere. The radius of the sphere is
- A) 21 cm
 - B) 28 cm
 - C) 35 cm
 - D) 36 cm
25. Sides of two similar triangles are in the ratio 4:9. Areas of these triangles are in the ratio.
- A) 2:3
 - B) 4:9
 - C) 81:16
 - D) 16:81
26. How many two digit numbers are divisible by 3?
- A) 33
 - B) 43
 - C) 40
 - D) 30
27. The distance between the points (2,3) and (4,1) is
- A) $2\sqrt{2}$
 - B) $4\sqrt{2}$
 - C) 30
 - D) 46
28. The relation between mean, mode and median for a frequency distribution is
- A) $\text{Mode} = 3\text{Mean} - 2\text{Median}$
 - B) $\text{Mode} = 2\text{Median}$
 - C) $\text{Mode} = 3\text{median} - 2\text{Mean}$
 - D) $\text{Mode} = 3\text{median} + 2\text{Mean}$

29. The value of $\sin 60^\circ \cdot \cos 30^\circ + \sin 30^\circ \cdot \cos 60^\circ$ is
- A) 1
 - B) 2
 - C) 0
 - D) None of the above
30. The quadratic equation $2x^2 + Ky + 3 = 0$ have equal roots then the value of K is
- A) $\sqrt{24}$
 - B) 0
 - C) 6
 - D) 4
31. If a pair of linear equations is inconsistent, then their graph line will be
- A) Intersecting
 - B) Coincident
 - C) Parallel
 - D) Perpendicular
32. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that $OQ = 12$ cm. Length PQ is
- A) 12 cm
 - B) 13 cm
 - C) 8.5 cm
 - D) $\sqrt{119}$ cm
33. The formula to find the Area of a circle is
- A) πr^2
 - B) $4 \pi r^2$
 - C) $2 \pi r^2$
 - D) $6 \pi r^2$
34. The distance between the origin and co-ordinates of a point (a,b) is

- A) a^2+b^2
- B) $\sqrt{a^2} - b^2$
- C) a^2-b^2
- D) $\sqrt{a^2} + b^2$

35. The median class of the following distribution is:

0-10	10-20	20-30	30-40	40-50	50-60	60-70
4	4	8	10	12	8	4

- A) 20-30
- B) 30-40
- C) 40-50
- D) 50-60

36. If the areas of two similar triangles are equal, then they are

- A) Similar
- B) Congruent
- C) Perpendicular
- D) Mid points

37. The sum of the AP 2,7,12,....to 10 terms

- A) 180
- B) 110
- C) -180
- D) -170

38. If $l=8\text{cm}$, $b=4\text{cm}$, $h=5\text{cm}$ then the volume of a cuboid is

- A) 180 cu.units
- B) 160 cu.units
- C) 140 cu.units
- D) 120 cu.units

39. 8 pants and 12 T-shirts together rupees 200. Express this situation algebraically are
- A) $8x+12y=200$
 - B) $12x-8x=250$
 - C) $8x-12y=-200$
 - D) $X+y=8$

40. If $3\sin A=18$, then the value of $\operatorname{cosec} A$ is
- A) $\frac{18}{3}$
 - B) $\frac{3}{18}$
 - C) $\frac{18}{18}$
 - D) $\frac{38}{3}$



SPACE FOR ROUGH WORK:-

SECTION B
GENERAL SCIENCE (83 E)

PART-A (PHY)

- II. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer and mark it with the given OMR Sheets. 40x1=40**

1. Unit of electric power may also be expressed as
 - A) Volt ampere
 - B) Kilowatt hour
 - C) Watt second
 - D) Joule second

2. The SI unit of electric charges is
 - A) volt
 - B) ampere
 - C) coulomb
 - D) joule

3. When light goes from one medium to another the characteristics that remain and unchange is its
 - a) speed
 - b) direction of light ray
 - c) wavelength
 - d) frequency

4. Which of the following statements does not represent Ohm's law
 - a) current/potential difference=constant
 - b) potential difference/current it=constant
 - c) potential difference=current x resistance
 - d) current=resistance x potential difference.

5. When light goes from one medium to another the characteristics that remain and uneffect is its
 - a) speed
 - b) direction of light ray
 - c) wavelength
 - d) frequency

6. A positive charge released from rest
 - a) moves towards the regions of lower potential
 - b) moves towards the regions of higher potential
 - c) Moves towards the regions of equal potential
 - d) does not move

7. Which instrument detects the presence of electric current in a circuit
 - a) galvanometer
 - b) voltmeter
 - c) generator
 - d) magnetic compass needle

8. A Turbine cannot be rotated by
 - a) flowing water
 - b) heat of sun
 - c) steam
 - d) moving wind

9. Light ray travels from one medium to another with the same refractive index
- the light rays bends less
 - the light rays bends more
 - bending of light does not occur
 - total internal reflection occurs
10. The magnetic field lines inside a solenoid are in the form of parallel straight line the reason for this is the magnetic field inside the solenoid is
- very high
 - uniform
 - zero
 - produced by electricity
11. Commercial electric motors do not use
- an electromagnet to rotate the armature
 - effectively the large number of turns of conducting wire in the current carrying coil
 - a permanent magnet to rotate the armature
 - a soft iron core on which the coil is wound
12. The power plant in which natural source of energy is directly used to rotate turbines is
- thermal power plant
 - hydroelectric power plant
 - nuclear power plant
 - solar Power plant
13. Natural gas contains _____per cent of methane gas
- 96
 - 97

- c)3
- d)93

14. Choose the incorrect statement
- A) Fleming's right hand rule is a sample rule to know the direction of induced current
 - B) the right hand thumb rule is used to find the direction of magnetic field due to current carrying conductors
 - C) the difference between the direct and alternating currents is that the direct current always flows in one direction but the alternating current reversed its direction periodically
 - D) India the AC changes direction after every 1/50 second

CHEM (14M)

15. Which one of the following types of medicines used for treating indigestion
- A) Antibiotic
 - B) Analgesic
 - C) Antacid
 - D) Antiseptic
16. The reaction of sodium with oxygen is
- A) Endothermic and spontaneous
 - B) Exothermic and non spontaneous
 - C) Exothermic and spontaneous
 - D) Endothermic and non spontaneous
17. An example for detergent is
- A) Sodium lauryl sulphate
 - B) Sodium palmate
 - C) Potassium stearate

- D) Sodium linoleate
18. Which of the following has double bonds?
- A) Ethane and oxygen
 - B) Nitrogen and Ethane
 - C) Oxygen and methane
 - D) Methane and carbon dioxide
19. Which of the following always decreases down a group
- A) Metallic character
 - B) Non-metallic character
 - C) Chemical reactivity
 - D) Atomic size
20. Elements with atomic number 18 belongs to
- A) 2nd period, 8th group
 - B) 3rd period, 8th group
 - C) 2nd period, 18th group
 - D) 3rd period, 18th group
21. The pH of gastric juices released during digestion is
- A) Less than 7
 - B) More than 7
 - C) Equal to 7
 - D) None of the above
22. The gas liberated when an acid reacts with a metal is
- A) Hydrogen
 - B) Sodium
 - C) CO₂
 - D) O₂

23. Al_2O_3 is an example of
- A) An acidic oxide
 - B) A basic oxide
 - C) An amphoteric oxide
 - D) A neutral oxide
24. Pentane has the molecular formula C_5H_{12} . It has
- A) 5 covalent bonds
 - B) 12 covalent bonds
 - C) 16 covalent bonds
 - D) 17 covalent bonds
25. The presence of which ion makes water hard?
- A) Sodium
 - B) Calcium
 - C) Potassium
 - D) Sulphate
26. The period and group number of element with atomic number 7 are
- A) 2,3
 - B) 2,4
 - C) 2,5
 - D) 2,15
27. The first three periods are
- A) Long periods
 - B) Short periods
 - C) Moderate periods
 - D) None of this
28. Food cans are coated with tin and not zinc because

- A) Zinc is costlier than tin
- B) Zinc has higher melting point than tin
- C) Zinc is more reactive than tin
- D) Zinc is less reactive than Tin

BIO(12M)

29. The blood vessel that supplies blood to cardiac cells is

- A) Coronary artery
- B) Pulmonary vein
- C) Pulmonary artery
- D) Aorta

30. In the Excretory system of human being, some substances in the initial filtrate such as glucose, amino acids, salts and water are selectively reabsorbed in

- A) Urethra
- B) Nephron
- C) Ureter
- D) Urinary bladder

31. The gap between two neurons is called a

- A) Dendrite
- B) Synapse
- C) Axon
- D) Impulse

32. The number of pairs of spinal nerves in humans is

- A) 12
- B) 31
- C) 21
- D) 8

33. Which of the following is not a part of Female reproductive system

- A) Ovary
 - B) Uterus
 - C) Vasdeferens
 - D) Fallopian tube
34. The part of the flower which develops into fruit is
- A) Ovule
 - B) Ovary
 - C) Pistil
 - D) Style
35. An example of Homologous organ is
- A) Our Arm and A dog's fore-leg
 - B) Our teeth and an Elephant's tusks
 - C) Potato and runners of grass
 - D) All of the above
36. What will be the genotypic ratio of the cross between Rr and Rr?
- A) 1:2:1
 - B) 3:1
 - C) 1:1
 - D) 1:1:1
37. Which of the following groups contain only biodegradable items?
- A) Grass, Flowers, and Leather
 - B) Grass, Wood, and Plastic
 - C) Fruit-peels, Cake and Lime juice
 - D) Cake, Wood, and Grass
38. Depletion of Ozone is mainly due to
- A) CFC
 - B) Carbon monoxide
 - C) Methane

D) Pesticides

39. The practice of using used materials without changing their shape and form is

- A) Reuse
- B) Recycling
- C) Repurpose
- D) Reduce

40. Kulh is a type of

- A) Dam
- B) Lake
- C) Canal
- D) Well

SPACE FOR ROUGH WORK

SECTION C
SOCIAL SCIENCE

III. Four alternatives are given for each of the following questions/incomplete statements. Choose the correct alternative and write the complete answer and mark it with the given OMR Sheets. 40x1=40

1. The nawab of awadh during the battle of Buxar was
 - A) siraj ud Daula
 - B) Mir Jaffar
 - C) Mir Kasim
 - D) Anwaruddin

2. The person who supplies goods or services is called
 - A) buyer
 - B) consumer
 - C) mediator
 - D) provider

3. Which of the following is not a natural disasters?
 - A) earthquake.
 - B) flood
 - C) deforestation
 - D) drought

4. Information technology is also known by the name
 - A) knowledge based industry
 - B) profitable industry
 - C) technically sound industry

- D) silicon industry
5. Which is the project that aims to build huge national highways?
A) 20 point programme
B) golden quadrilateral program
C) 5 year project
D) gramin sadak project
6. An Indian needs at least 1820 calories of food according to
A) UNICEF
B) UNESCO
C) WHO
D) FAO
7. The Appico of movement was started in a place called
A) Udupi
B) Kala se
C) Hassan
D) Shimoga
8. International Labour Organisation:Geneva::Food and agricultural igranization:
A) 4th october 1935
B) 14th october 1940
C) 24th october 1945
D)24th october 1950
9. The American war of independence took place in
A) 1776
B) 1876
C) 1796
D) 1896

10. why is Sardar Vallabhbhai Patel called as the Ironman of India
- A) for being the home minister of India
 - B) for uniting Jaungadh with the Union of India
 - C) for merging the princely states with the Union of India
 - D) for agreeing to pay privy purse to the ruler
11. Swaraj is my birthright I shall have it was the declaration of
- A) B.G.Tilak
 - B) M.K.Gandhi
 - C) Vallabhbhai Patel
 - D) Jawaharlal Nehru
12. The non cooperation movement was withdrawn after the Incident at
- A) chaurichaura
 - B) Jallianwala Bagh
 - C) Dandi
 - D) Haripur
13. Founder of Indian National Congress was
- A) Mahatma Gandhi
 - B) A.O.Hume
 - C) Balagandhar Tilak
 - D) Gopala Krishna Gokhale
14. The National Association of banks technically means
- A) cancellation of transaction
 - B) government direct control
 - C) classification of banks
 - D) given to private control
15. Development of villages is the true development of India was said by
- A) Mahatma Gandhi ji

- B) Vinoba Bhave
 - C) Dadabhai naoroji
 - D) Jawaharlal Nehru
16. Economic development is a process whereby an economics real national income increases over a long period of time the definition of the development is according to
- A) Amartya sen
 - B) Meier and Baldwin
 - C) Mahabub UI Haq
 - D) colin clark
17. Gobind Sagar Reservoir is created by
- A) Damodar Valley project
 - B) Bakra Nangal project
 - C) Hirakud project
 - D) Tungabhadra project
18. Evergreen forest are found in
- A) Tripura
 - B) Jaipur
 - C) Sulthanpur
 - D) patilala
19. The Western Ghats are influenced the climate of India in
- A) help in growth of dense forest
 - B) providing attractive hill station
 - C) causing heavy rain from the Southwest monsoon
 - D) providing shelter to wildlife
20. The Himalaya plays a very important role in the life of Indians because they
- A) have glaciers

- B) have the highest peak
 - C) are the birthplace of rivers
 - D) have mountain passes
21. The issue of women working in the family without any compensation is discussed within the framework of
- A) socialism
 - B) equality
 - C) feminism
 - D) discrimination
22. If attachable person comes within the distance of the tail of a cow with an untouchable he could purify himself with a bath this is the statement of
- A) B Kuppuswamy
 - B) vyaghrapada Smriti
 - C) BR Ambedkar
 - D) Gandhiji
23. Russia has helped India
- A) to established Steel plants at Bhilai and Bokaro
 - B) to claim for permanent seat in the security council of UNO
 - C) during the Liberation of Goa in 1961
 - D) all the above
24. In a radio speech on the 7th September 1946 Jawaharlal Nehru explain the features of indian foreign policy to be a
- A) against coloniasm
 - B) agresive
 - C) in favour of arms
 - D) aligned with the power bloc

25. The program implemented by Government of Karnataka for the development of rural women is
- A) Lokayukta
 - B) stree shakthi
 - C) sakshara bharath
 - D) Family planning programme
26. The policy of doctrine of lapse was introduced by
- A) Lord Canning
 - B) Lord Hastings
 - C) Lord Dalhousie
 - D) Lord Wellesley
27. Viakom moment a temple entry movement was started by
- A) N.G.Chandravarkar
 - B) R.G. Bhandarkar
 - C) Narayanaguru
 - D) E.V.Ramaswami Naicker
28. Sir eyre coote defeated Hyder ali in the battle of
- A) Panipat
 - B) Soliungur
 - C) Wandiwash
 - D) Bauxar
29. The new post of superiordent of police was created by
- A) Lord Cornwallis
 - B) William Bentinck
 - C) Lord Dalhousie
 - D) Robert Clive
30. Narayana Rao son who was brought to the post of Peshwa was

- A) Madhav Rao II
 - B) Madhav Rao
 - C) Raghunath Rao
 - D) Bajirao II
31. Which of the following was not exported from the India to Europe
- A) pepper
 - B) Horses
 - C) cardomom
 - D) Ginger
32. The newspaper starter by Annie Besant was
- A) new India
 - B) British India
 - C) forgitton India
 - D) Indian moment
33. The book The Republic the division of Labor was written by
- A) Aristotle
 - B) Plato
 - C) Karl Marx
 - D) Herodotus
34. That declaration Independence should begin with the villages first and each villages should be a democratic unit by Gandhi ji was called by him
- A) panchayat raj
 - B) pura
 - C) Decentralisation of power
 - D) gram Swaraj

35. Which of the following is not an indicator of Human development index
- A) life expectancy
 - B) National income
 - C) per capita income
 - D) educational attainment
36. Ramu has some money and wants to save money to purchase car. The type of account he has to open in the bank is
- A) saving bank account
 - B) current account
 - C) recurring deposit account
 - D) Term deposit account
37. Which group of leaders was called political beggars?
- A) commmunists
 - B) revolutionaries
 - C) extremers
 - D) moderators
38. Swaraj party was found in
- A) 1924
 - B) 1923
 - C) 1929
 - D) 1942
39. Agricultural produce is a transported by farmers to the markets mainly through
- A) waterways
 - B) airways
 - C) railways
 - D) roads

40. Which of the following can effectively prevent coastal erosion?
- A) prohibiting human activities along the coast
 - B) planting of trees along the coast
 - C) sand mining
 - D) construction of building along the coast