

CBSE | DEPARTMENT OF SKILL EDUCATION

GEOSPATIAL TECHNOLOGY (SUBJECT CODE - 818)

MARKING SCHEME FOR CLASS XI (SESSION 2024-2025)

Max. Time: 3 Hours

Max. Marks: 60

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **24 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (6 + 18 =) 24 questions, a candidate has to answer (6 + 11 =) 17 questions in the allotted (maximum) time of 3 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):**
 - i. This section has 06 questions.
 - ii. There is no negative marking.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (30 MARKS):**
 - i. This section contains 18 questions.
 - ii. A candidate has to do 11 questions.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/PSSCIV E/ CBSE Study Material)	Unit/ Chap. No.	Marks
Q. 1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)			
i.	(d) All of the above	PSSCIVE	Unit 1	1
ii.	(a) feel confident about ourselves	PSSCIVE	Unit 2	1
iii.	(b) Formal shirt and pants	PSSCIVE	Unit 2	1
iv.	(b) Ctrl + N	PSSCIVE	Unit 3	1
v.	(a) Using chemical fertilizers	PSSCIVE	Unit 5	1
vi.	(a) Judgmental	PSSCIVE	Unit 4	1
Q. 2	Answer any 5 out of the given 7 questions (1 x 5 = 5 marks)			
i.	(d) The ratio of a distance on a map to the corresponding distance on the ground.	NCERT	Unit 2	1
ii.	(a) Tributary of a river.	NCERT	Unit 1	1
iii.	(a) coordinates showing location of discrete objects.	NCERT	Unit 4	1
iv.	(c) GPS, RS, GIS.	NCERT	Unit 1	1

v.	(a) Colorado Springs	NCERT	Unit 5	1
vi.	(d) 2.5m	NCERT	Unit 3	1
vii.	(c) Clarity of the image does not change with time of the day	NCERT	Unit 3	1
Q. 3	Answer any 6 out of the given 7 questions (1 x 6 = 6 marks)			
i.	(b) Fire	NCERT	Unit 3	1
ii.	(b) Large scale map	NCERT	Unit 2	1
iii.	(d) All of the above	NCERT	Unit 4	1
iv.	(a) GIS technology is the same as traditional mapping.	NCERT	Unit 1	1
v.	(d) Electromagnetic waves	NCERT	Unit 3	1
vi.	(a) Placement of satellite in orbit	NCERT	Unit 4	1
vii.	(b) Global Positioning System	NCERT	Unit 5	1
Q. No.	QUESTION	Source Material (NCERT/PSSCIV E/ CBSE Study Material)	Unit/ Chap. No.	Marks
Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)			
i.	(d) The ratio of a distance on a map to the corresponding distance on the ground.	NCERT	Unit 2	1
ii.	(c) Both a and b	NCERT	Unit 3	1
iii.	(c) Digital, spatial, and generic	NCERT	Unit 1	1
iv.	(d) RS technology	NCERT	Unit 4	1
v.	(c) 0.40 – 0.70 μm	NCERT	Unit 3	1
vi.	(b) Satellites	NCERT	Unit 5	1
Q. 5	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)			
i.	(c) Both a and b	NCERT	Unit 4	1
ii.	(d) Times of particular events.	NCERT	Unit 4	1
iii.	(a) Star age	NCERT	Unit 5	1
iv.	(a) Map data layer	NCERT	Unit 1	1
v.	(c) Compiler	NCERT	Unit 3	1
vi.	(d) All of the above	NCERT	Unit 2	1
Q. 6	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)			
i.	(b) Scattering	NCERT	Unit 3	1
ii.	(a) Keyboard	NCERT	Unit 4	1
iii.	(c) Both a and b	NCERT	Unit 4	1
iv.	(c) Selective Availability	NCERT	Unit 5	1
v.	(c) Geographic Information System	NCERT	Unit 1	1
vi.	(c) Soil	NCERT	Unit 2	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/PSSCIVE/ CBSE Study Material)	Unit/ Chap. No.	Marks
Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each (2 x 3 = 6 marks)				
Q. 7	The strongest passwords are a mix of letters, numbers and special characters. A safe password will always contain several upper and	NCERT	Unit 3	2

	lowercase letters, numbers, and special characters (! # \$ % [] * + =?, etc.).			
Q. 8	Good personal hygiene helps stop you from getting sick and spreading germs. Washing your hands often is a good way to stop the germs on your hands making you sick. Bathing or showering often helps prevent infections and body lice.	PSSCIVE	Unit 2	2
Q. 9	The term "green economy" covers six major sectors: renewable energy, green buildings, clean transportation, water management, waste management, and land management. It can be done in the following ways <ul style="list-style-type: none"> • Reduce, reuse, and recycle • Water Conservation • Renewable Energy • Energy Conservation • Use of public transportation, walking or cycling: ... • Buy local and organic food • Reduce meat consumption • Grow your own food 	PSSCIVE	Unit 5	2
Q. 10	All of your nonverbal behaviors—the gestures you make, your posture, your tone of voice, how much eye contact you make—send strong messages. They can put people at ease, build trust, and draw others towards you, or they can offend, confuse, and undermine what you're trying to convey.	PSSCIVE	Unit 1	2
Q. 11	Values are stable long-lasting beliefs about what is important to a person. They become standards by which people order their lives and make their choices. A belief will develop into a value when the person's commitment to it grows, and they see it as being important.	PSSCIVE	Unit 4	2
Answer any 3 out of the given 5 questions in 20 – 30 words each (2 x 3 = 6 marks)				
Q. 12	A geographic coordinate system (GCS) is used to define locations on a model of the surface of the earth. The GCS uses a network of imaginary lines (longitude and latitude) to define locations.	NCERT	Unit 4	2

	<p>For example, the geographic coordinate expressed in degrees-minutes-seconds for New York City is:</p> <ul style="list-style-type: none"> • Latitude: 40 degrees, 42 minutes, 51 seconds N. • Longitude: 74 degrees, 0 minutes, 21 seconds W. 			
Q. 13	<p>As the most commonly used metric for classifying optical satellite imagery, spatial resolution refers to the distance represented by a pixel in an image. For example, NASA's Landsat collects imagery at 15-meter resolution—so every pixel in one of its images represents a 15 m by 15 m square on the ground.</p>	NCERT	Unit 3	2
Q. 14	<p>Physical maps show the relief and landforms like plains, plateaus, and mountains. Political maps show national and state boundaries, and national and state capital cities. Physical maps are used to study the slopes, height, depth, and shape of physical features, and to understand the distribution of physical features of a particular region, state, country, or world. Political maps are used to study state boundaries, neighboring countries, capital cities, and any other manmade boundaries of an area.</p>	NCERT	Unit 2	2
Q. 15	<p>A topographical map portrays both, natural features as well as man-made features.</p> <p>A topographical map is a detailed and accurate illustration of man-made and natural features on the ground. Different symbols can be used on a map to represent different features on a map.</p>	NCERT	Unit 1	2
Q. 16	<p>Although some atmospheric conditions like rain or snow can weaken the GPS signal, they generally do not affect GPS reception, but nevertheless this can apply to positioning of the antenna. In case your GPS tracking antenna has a thick ice or snow coating, the accuracy level can drop.</p>	NCERT	Unit 5	2
Answer any 2 out of the given 3 questions in 30– 50 words each (3 x 2 = 6 marks)				
Q. 17	<p>A sensor is a device that detects and responds to some type of input from the physical environment. The input</p>	NCERT	Unit 3	3

	<p>can be light, heat, motion, moisture, pressure or any number of other environmental phenomena.</p> <p>Sensors can be classified into two main categories: active and passive. Active sensors emit energy and measure the reflected or scattered signal, while passive sensors detect the natural radiation or emission from the target or the environment.</p>			
Q. 18	<p>Data acquisition is the process of sampling signals that measure real world physical conditions and converting the resulting samples into digital numeric values that can be manipulated by a computer.</p> <p>Satellite imagery is one of the most common and powerful data sources for GIS professionals. It provides high-resolution, multispectral, and temporal information about the Earth's surface and atmosphere. You can use satellite imagery to monitor land use, vegetation, climate, disasters, and human activities.</p> <p>Sources of data include global navigation satellite systems, satellite and aerial sensing, field surveys, land records, socioeconomic data (e.g., census), volunteered geographic information, wireless sensor networks, and unmanned aerial systems.</p>	NCERT	Unit 4	3
Q. 19	<p>GPS, or the Global Positioning System, is a global navigation satellite system that provides location, velocity and time synchronization. GPS is everywhere. You can find GPS systems in your car, your smartphone and your watch.</p> <p>The GPS control segment consists of a global network of ground facilities that track the GPS satellites, monitor their transmissions, perform analyses, and send commands and data to the constellation.</p> <p>The Control Segment consists of 3 entities: Master Control Station Monitor Stations Ground Antennas</p>	NCERT	Unit 5	3

	Control stations continuously track satellites, and update the positions of each satellite. User Segment The user's GPS receiver is the User Segment of the GPS system			
Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)				
Q. 20	<p>Remote sensing is the process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (typically from satellite or aircraft). Special cameras collect remotely sensed images, which help researchers "sense" things about the Earth.</p> <p>The seven phases to complete this process using imaging systems are as follows:</p> <ul style="list-style-type: none"> • PHASE 1: Energy Source or Illumination. ... • PHASE 2: Radiation and the Atmosphere. ... • PHASE 3: Interaction with the Target. ... • PHASE 4: Recording of Energy by the Sensor. ... • PHASE 5: Transmission, Reception, and Processing. • PHASE 6: Interpretation and Analysis • PHASE 7: Application 	NCERT	Unit 3	4
Q. 21	<p>GIS technology utilizes two basic types of data. These are: 1) Spatial data: describes the absolute and relative location of geographic features. 2) Attribute data: describes characteristics of the spatial features</p> <p>Geospatial data is created, shared, and stored in many different formats. The two formats are raster and vector. Vector data is represented as either points, lines, or polygons. Discrete (or thematic) data is best represented as vector.</p>	NCERT	Unit 4	4
Q. 22	<p>GPS satellites broadcast their signals in space with a certain accuracy, but what you receive depends on additional factors, including satellite geometry, signal blockage, atmospheric conditions, and receiver</p>	NCERT	Unit 5	4

	<p>design features/quality. In dense urban environments, tall buildings can refract GPS signals, reducing accuracy. In forests, trees can obstruct signals. Similarly, adverse weather conditions or intense solar activity can disrupt GPS signal reception.</p> <p>The position of satellites, the features of GPS receivers, and the signal effect from surrounding environment may also affect the accuracy of GPS Signals.</p>			
Q. 23	<p>Geospatial data enables you to model the real world, often within real time. Accurate predictions lead to better decision-making – When you study a phenomenon over time in the context of a particular location, you begin to better understand why it happens where and when it does.</p> <p>These technologies are used to visualise, manipulate, analyse, display, and record spatial data. Spatial information is increasingly used across many industries including transport, defence, security, agriculture, mining, construction, healthcare, and retail. GIS technology is used in a wide range of industries, including government, transportation, utilities, environmental management, and public health, among others.</p>	NCERT	Unit 1	4
Q. 24	<p>(a) cadastral map and thematic map. Cadastral maps are the maps of towns or villages showing details of streets, plots, fields, etc. Thematic maps are the maps which show selected features like weather, population, road, vegetation, etc. drawings without any proper planning.</p> <p>(b) large scale map and small scale map.</p> <p>Small scale maps will in general show a bigger geographic zone and less itemized and large scale maps show a more modest geographic zone with more prominent detail</p> <p>Large scale maps show a smaller amount of area with a greater amount of detail. The geographic extent shown on a large scale map is small. A large scaled map expressed as a</p>	NCERT	Unit 2	4

	<p>representative scale would have a smaller number to the right of the ratio. For example, a large scale map could have a RF scale of 1 : 1,000. Small scale refers to world maps or maps of large regions such as continents or large nations. In other words, they show large areas of land on a small space. They are called small scale because the representative fraction is relatively small.</p>			
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